

MEDICAL TIMES

Journal for the Family Physician

October, 1960

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DROWNING



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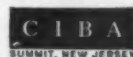
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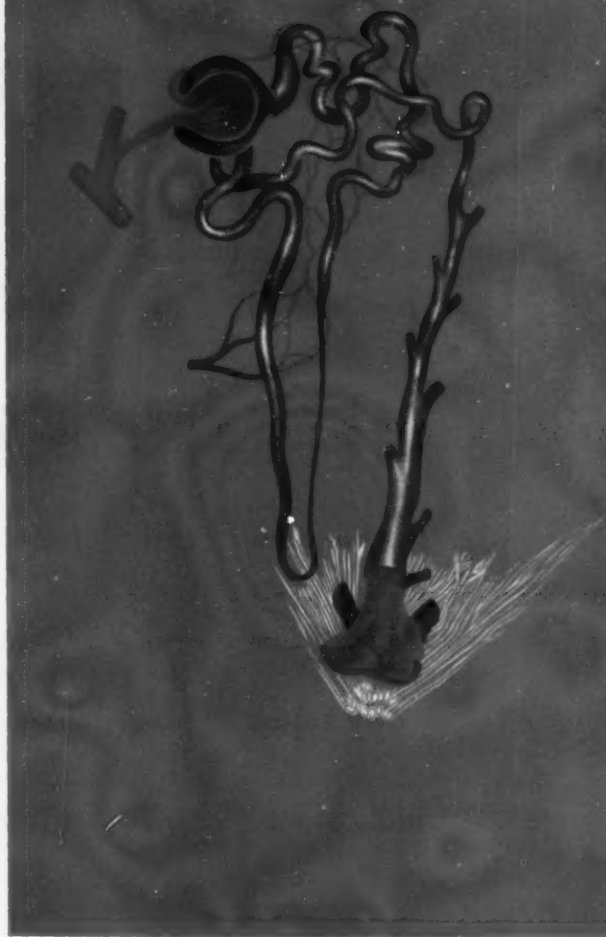
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on the pathogenesis of pyelonephritis:

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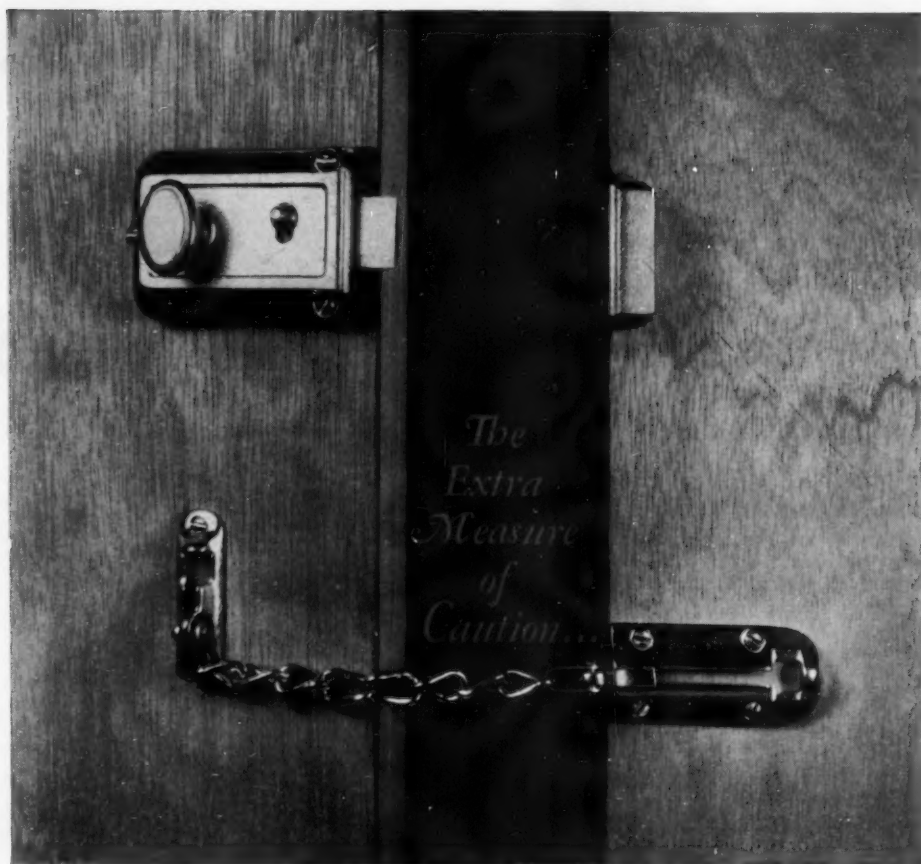
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Zinc	1.5 mg.
Potassium	5.0 mg.
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references:

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ENOUGH IRON

Jefron Elixir provides *enough iron*—100 mg. per 5 cc. teaspoonful—to produce adequate hematopoietic response in uncomplicated iron deficiency anemia.

And with Jefron you can give *enough iron*—without gastric upset—in severe anemias, requiring increased dosage, and in prolonged therapy needed to replenish tissue stores.

DOSAGE: The recommended daily dosage is: For infants and children under six, 0.6 cc. to $\frac{1}{2}$ teaspoonful. For children six to twelve, $\frac{1}{2}$ to 1 teaspoonful. For adults, 1 or 2 teaspoonfuls. Supplied: 8 oz. bottles.



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Jefron™ Elixir

Jefron Elixir is so palatable and so well tolerated that it is acceptable to almost all patients.



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Amplus Improved 195a

Prelu-Vite 45a

another patient with hypertension?





*indicated
in all degrees
of hypertension*

*effective
by itself in most
hypertensives*

HYDROPRES

HYDRODIURIL® with RESERPINE
(HYDROCHLOROTHIAZIDE)

HYDROPRES can be used:

- ▶ *alone* (In most patients, HYDROPRES is the only antihypertensive medication needed.)
- ▶ *as basic therapy, adding other drugs if necessary* (Should other antihypertensive agents need to be added, they can be given in much lower than usual dosage so that their side effects are often strikingly reduced.)
- ▶ *as replacement therapy, in patients now treated with other drugs* (In patients treated with rauwolfia or its derivatives, HYDROPRES can produce a greater antihypertensive effect. Moreover, HYDROPRES is less likely to cause side effects characteristic of rauwolfia, since the required dosage of reserpine is usually less when given in combination with HydroDIURIL than when given alone.)

HYDROPRES-25

25 mg. HydroDIURIL, 0.125 mg. reserpine.
One tablet one to four times a day.

HYDROPRES-50

50 mg. HydroDIURIL, 0.125 mg. reserpine.
One tablet one or two times a day.

If the patient is receiving ganglion blocking drugs or hydralazine, their dosage must be cut in half when HYDROPRES is added.

For additional information, write Professional Services, Merck Sharp & Dohme, West Point, Pa.



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DISRUPTS
TENSION**

Dependable, prompt-acting
daytime sedative.

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Adults: $\frac{1}{2}$ to 1 teaspoonful of either Elixir Alurate or Elixir Alurate Verdum, 3 times daily.

ALURATE®—brand of aprobarbital

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Off the Record...

Contributions describing actual and unusual happenings in your practice are welcome. For obvious reasons only your initials will be published. An imported sculptulite figurine . . . an amusing caricature of a physician . . . will be sent in appreciation for each accepted contribution.

Cough Remedy

Not too long ago an elderly man, an old patient of mine, came in with a respiratory infection. I should explain that he is a whimsical sort, much given to delivering pithy comments.

As I was examining him I asked him if he coughed much.

"No," he answered, "I don't cough much . . . because when I do it hurts like the blazes."

A.F., M.D.

New York, N. Y.

Now Let's Tango

We have a number of Latin Americans in our town and getting a history from them can be exasperating if you do not speak their language. I don't.

Recently I had a woman patient who came in with an interpreter. I asked the interpreter, "Does she have a burning sensation when she urinates?"

After about three minutes of conversation between the two, the interpreter answered: "She say yes."

My next question: "Does she have frequency of urination?"

Again the patient and interpreter went into a huddle. It lasted for at least five minutes and was punctuated, at times, by laughter from both parties.

Then the interpreter turned again to me: "She say no."

Anonymous

Better Ask The Expert

It was during World War II, on one of those days when it seemed that every patient my husband had ever treated decided to come to the office at the same time. He was busy and somewhat uneasy, preoccupied with the problem of making time for house calls before evening office hours.

While he was busy examining a patient there came a loud, impatient pounding on the door of his consultation room. Unwilling to stop what he was doing, he sent me to see what the trouble was.

I opened the door to find young Mrs. Brown ready to deliver another resounding knock. I asked her what she wanted and she said she wanted to ask the doctor a few questions. I told her she would have to wait at least until he was finished with his current patient unless it was something I could help her with.

Clearly, and in a voice as loud as the Chimes of Normandy, she said (interspersed with many giggles): "Well, I had a baby about six weeks ago . . . and my husband has just come home on furlough . . . and I've got to ask some very important questions . . ."

A wave of snickers rose from the "audience" in the waiting room. Joe the cop, whom I'd known for years, looked up at me, smiling broadly and expectantly. I felt a blush make its way up my neck right to the ears. I thought fast—I had to.

Concluded on page 29a



for every phase of cough...
comprehensive relief

AMBENYL[®] EXPECTORANT

AMBENYL EXPECTORANT quickly comforts the coughing patient because it is formulated to relieve all phases of cough due to upper respiratory infections or allergies. Combining Ambodryl[®]—potent antihistaminic; Benadryl[®]—the time-tested antihistaminic-antispasmodic; and three well-recognized antitussive agents, AMBENYL EXPECTORANT:

- soothes irritation • quiets the cough reflex
- decongests nasal mucosa • facilitates expectoration • decreases bronchial spasm • and tastes good, too.

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Ambodryl [®] hydrochloride	24 mg.
(bromodiphenhydramine hydrochloride, Parke-Davis)	
Benadryl [®] hydrochloride	56 mg.
(diphenhydramine hydrochloride, Parke-Davis)	
Dihydrocodeinone bitartrate	1/8 gr.
Ammonium chloride	8 gr.
Potassium guaiacolsulfonate	8 gr.
Menthol	q.s.
Alcohol	5%

Supplied: Bottles of 16 ounces and 1 gallon.

Dosage: Every three or four hours—adults, 1 to 2 teaspoonfuls; children 1/2 to 1 teaspoonful.

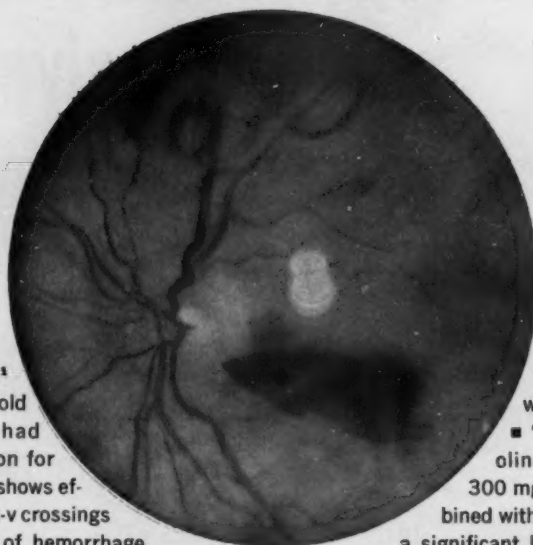
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Detroit 32, Michigan

PARKE-DAVIS

When blood pressure must come down



AS IN THIS CASE:¹

Fundus of 62-year-old female who has had severe hypertension for many years. Photo shows effect of pressure at a-v crossings and various types of hemorrhage.

■ When you see eyeground changes like this—with such hypertensive symptoms as dizziness and headache—your patient is a candidate for Serpasil-Apresoline. With this combination the antihypertensive action of Serpasil complements that of Apresoline to bring blood pressure down to near-normal levels in many cases. Side effects can be reduced to a minimum, since Apresoline is effective in lower

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■ "Hydralazine [Apresoline] in daily doses of 300 mg. or less, when combined with reserpine, produced a significant hypotensive effect in a large majority of our patients with fixed hypertension of over three years' duration."²

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D/2882 HK

1. Bedell, A. J.: Clin. Symposia 9:135 (Sept.-Oct.) 1957.
2. Lee, R. E., Seligman, A. M., Goebel, D., Fulton, L. A., and Clark, M. A.: Ann. Int. Med. 44:456 (March) 1956.

Serpasil-Apresoline[®]

hydrochloride

(reserpine and hydralazine hydrochloride CIBA)

Rx New SER-AP-ES[™] to simplify therapy of complicated hypertension

SER-AP-ES Tablets, each containing 0.1 mg. Serpasil, 25 mg. Apresoline hydrochloride, 15 mg. Esidrix / SERPASIL[®] (reserpine CIBA) / APRESOLINE[®] hydrochloride (hydralazine hydrochloride CIBA) / ESIDRIX[®] (hydrochlorothiazide CIBA)



I interrupted Mrs. Brown, told her to hold on and keep her questions for a professional. Then I hurried back to my kitchen, embarrassed but at the same time choking with laughter.

C.B.
Brooklyn, N. Y.

So Let's Celebrate

This is a little incident that happened within our own family circle.

The 4-year-old member of a nurse-doctor combination tenderly palpated his abdomen. "Not here, not here," he said. "Say, Mommy, where is my appendix?"

We showed him as well as we could, even to the point of using diagrams. But we were still wondering about his sudden interest in the appendix when he supplied the answer: "Today is Indeppendix Day!"

E.O.L., M.D.
Sparta, Wis.

Wrong Johnny in John

Mrs. M. called my office to say that she was sending in her son Johnny, aged 11, for an examination. The boy complained of burning on urination. The mother also explained to my nurse that the boy was very bashful and probably would be reluctant about giving a urine specimen.

When Johnny K., also aged 11, came in, my nurse handed him a jar, took him to the rest room and told him to fill the jar.

The boy said, "I can't."

"Oh yes you can," said my nurse, giving him a glass of water to drink.

"But I don't need to," the boy protested.

"Oh yes you do," my nurse replied firmly.

At this point I became aware of the situation and took my nurse aside and explained to her that it was Johnny M. who needed the urine examination, not Johnny K. Was her face red!

Anonymous

Endemic to Hollywood?

Recently a patient brought me a newspaper clipping showing a voluptuous screen star who had been hospitalized in New York with a suspected diagnosis of HE-PA-TITIES (hyphenated by me).

After a good laugh I explained to the patient that a typographical error had crept into the report, that there was no medical concern here about over-large breasts but that the reference was to a liver disease called "hepatitis."

Anonymous

Yes, But Don't Broadcast It!

During my early years in practice a young married woman came into my office with a sterility problem. At that time thyroid extract was the drug of choice to be given after the physical examination of both mates. Happily, in due time this patient became pregnant.

A few weeks later she brought in a friend of hers with a similar complaint. When I happened to step into the waiting room, which was fairly crowded, this new patient beamed at me and said in a loud voice, "Are you the doctor who makes all the women pregnant?"

M.E.F., M.D.
Chicago, Ill.

Startling Finding

One day recently there seemed to be an unusual number of babies in the office, crying, fussing and generally making their presence felt.

It was one of those busy, hectic days. At one point I was doing a sigmoidoscopy on a woman patient, and as I withdrew the scope the noise from the waiting room reached a peak. Turning to my assistant I said, "There certainly are a lot of babies in here . . ."

This brought the patient to an erect position in nothing flat.

E.A.L., M.D.
Centerville, Iowa

"Gratifying" relief from

*for your patients with
'low back syndrome' and
other musculoskeletal disorders*

POTENT muscle relaxation

EFFECTIVE pain relief

SAFE for prolonged use

stiffness and pain

“gratifying” *relief from stiffness and pain*

in 106-patient controlled study

(as reported in J.A.M.A., April 30, 1960)

“Particularly gratifying was the drug’s [SOMA’s] ability to relax muscular spasm, relieve pain, and restore normal movement . . . Its prompt action, ability to provide objective and subjective assistance, and freedom from undesirable effects recommend it for use as a muscle relaxant and analgesic drug of great benefit in the conservative management of the ‘low back syndrome’.”

*Kestler, O.: Conservative Management of “Low Back Syndrome”,
J.A.M.A. 172: 2039 (April 30) 1960.*

FASTER IMPROVEMENT—79% complete or marked improvement in 7 days (Kestler).

EASY TO USE—Usual adult dose is one 350 mg. tablet three times daily and at bedtime.

SUPPLIED: 350 mg., white tablets, bottles of 50.
For pediatric use, 250 mg., orange capsules, bottles of 50.

Literature and samples on request.

SOMA[®]
(CARISOPRODOL WALLACE)



WALLACE LABORATORIES, CRANBURY, NEW JERSEY

ENCOURAGING NEWS IN ANGINAL THERAPY

*Reporting on extensive clinical trial of ISORDIL,
a group of important investigators found
"impressive improvement in 67% of patients...",¹
favorable response in a total of 75%.*

1. Fisch, S., Boyle, A., Sperber, R., and DeGraff, A. C.

In their thoroughly documented report on 60 angina patients studied by open clinical trial, Fisch, Boyle, Sperber, and DeGraff found improvement in 75% of patients; 18% did not respond. Minor side reactions (mostly headache) hindered evaluation in only 7% of the patients treated.

Average Dosage Low, but Individualization Required

Average effective dose of ISORDIL was 10 mg. q.i.d.; 26% of patients received higher doses, 16% lower doses. Of all patients, 87% received and tolerated 5 to 15 mg. q.i.d.

Headache Commonest Side Effect, Easily Relieved

Although headache occurred initially in 27% of patients studied, it caused discontinuance of ISORDIL in only 4 patients. Continued therapy, adjustment of dosage, or use of acetylsalicylic acid relieved headache in all other cases.

Other Studies Confirm Results, Establish Additional Benefits

Maintenance of active coronary vasodilation by ISORDIL, as shown by Leslie,² Albert³ and Fremont,⁴ virtually eliminates periods of unprotection. Benefits are apparent as early as 15 minutes, persist for at least 4 hours. No lag in onset . . . important during early morning and postprandial stress.

References: 1. Fisch, S., Boyle, A., Sperber, R., and DeGraff, A.C.: Presented at the annual meeting of the American Therapeutic Society, Miami Beach, Florida, June 10, 1960. To be published. 2. Leslie, R.: Submitted for publication. 3. Albert, A.: In Manuscript. 4. Fremont, R.E.: To be published.

ISORDIL[®]

TABLETS

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Literature and Professional Samples Available on Request.

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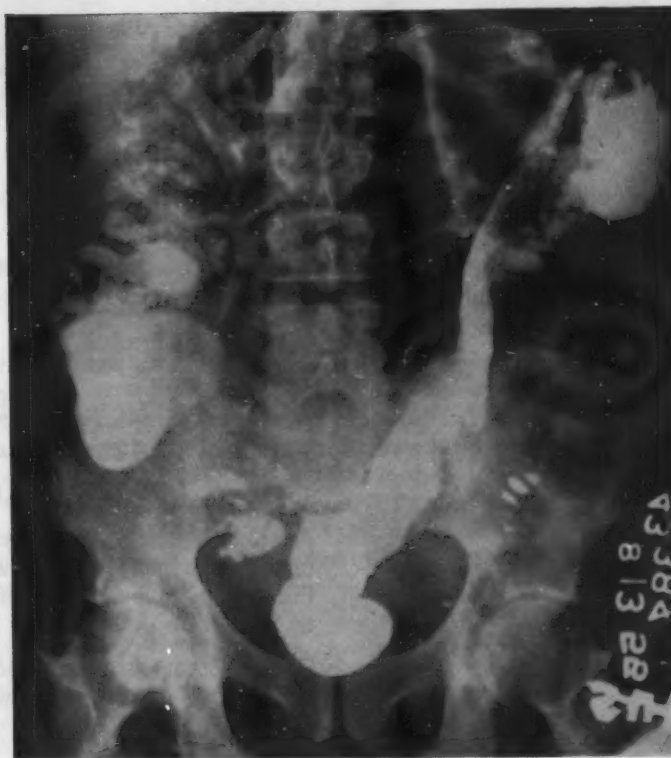
Diagnosis, Please!

Edited by Maxwell H. Poppel, M.D., F.A.C.R., Professor of Radiology,
New York University College of Medicine
and Director of Radiology, Bellevue Hospital Center

Which is your diagnosis?

- | | |
|--------------------------|----------------|
| 1. Normal | 3. Volvulus |
| 2. Lesion in the sigmoid | 4. Perforation |

(Answer on page 232a)



Fostex[®] treats their acne while they wash



degreases the skin

completely emulsifies and washes off excess oil from the skin.

helps remove blackheads

penetrates and softens comedones, unblocks pores and facilitates removal of sebum plugs.

dries and peels the skin

removes papule coverings and permits drainage of sebaceous glands.

Patients like Fostex because it is so easy to use. They simply wash acne skin 2 to 4 times a day with Fostex Cream or Fostex Cake, instead of using soap.

Fostex contains Sebulytic[®],* a combination of surface-active wetting agents with remarkable antiseborrheic, keratolytic and antibacterial actions... enhanced by sulfur 2%, salicylic acid 2%, and hexachlorophene 1%.

*sodium lauryl sulfoacetate, sodium alkyl aryl polyether sulfonate and sodium dioctyl sulfosuccinate.

Fostex is available in two forms—



FOSTEX CREAM, in 4.5 oz. jars.

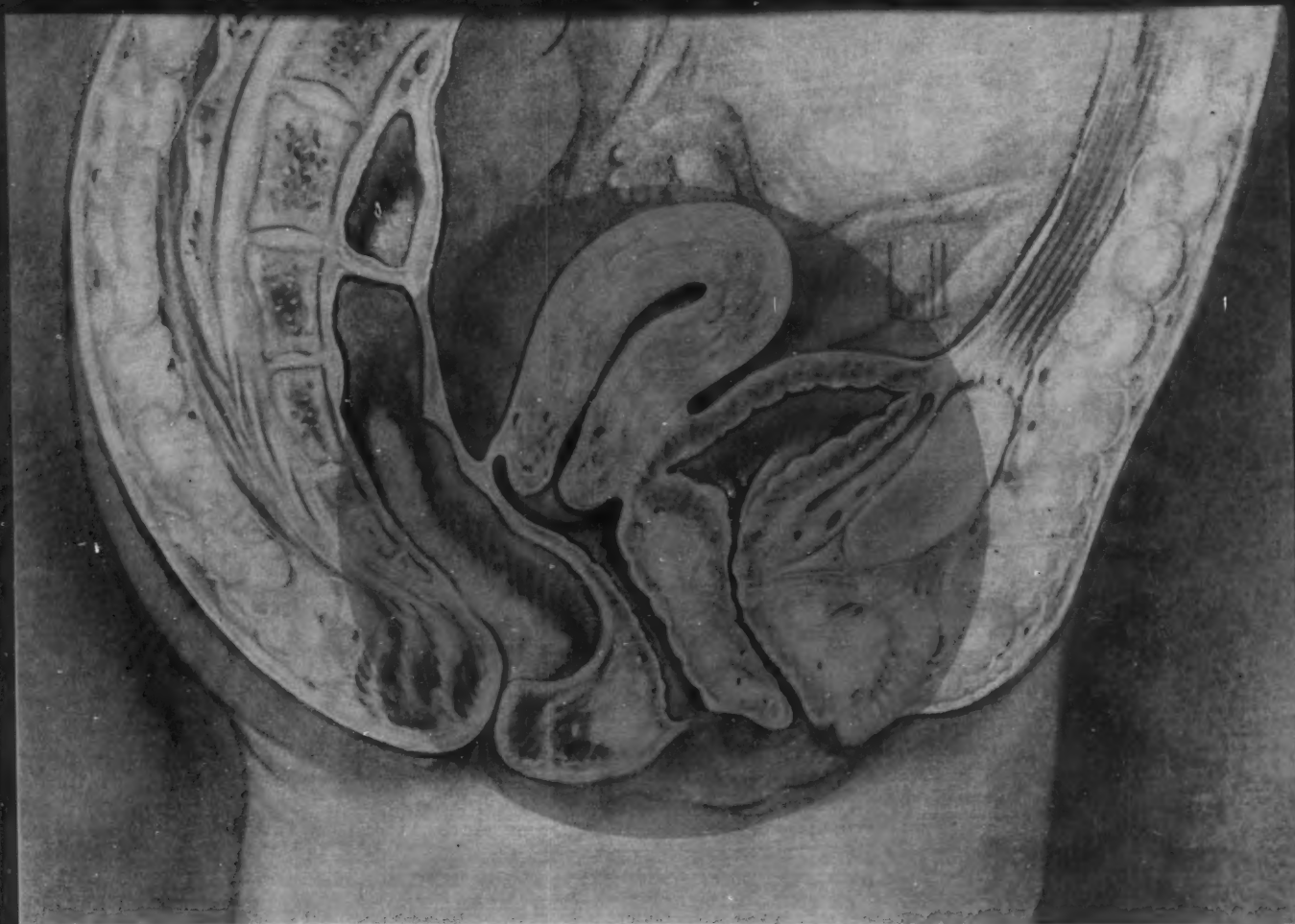
FOSTEX CAKE, in bar form.

Fostex Cream and Fostex Cake are interchangeable for therapeutic washing of the skin. Fostex Cream is approximately twice as drying as Fostex Cake.

Fostex Cream is also used as a therapeutic shampoo in dandruff and oily scalp.

Write for samples.

WESTWOOD PHARMACEUTICALS • Buffalo 13, New York



BUFFERED TO MAINTAIN A NORMAL, LOW pH...LOW SURFACE TENSION
FOR THOROUGH CLEANSING OF THE VAGINAL MUCOSA...

Buffers in Massengill Powder solution (pH 3.5 - 4.5) inhibit the neutralizing effect of an alkaline mucosa, maintaining a healthy, low pH for 4 to 6 hours in ambulant patients and up to 24 hours in recumbent patients. This low pH represses the propagation of candida, trichomonas vaginalis, and pathogenic bacteria but permits growth of the beneficial Döderlein bacillus. In contrast, an ordinary, unbuffered douche like vinegar is neutralized within 30 minutes after application. ● Low surface tension of Massengill Powder solution (50 dynes/cm.) enables it to penetrate and cleanse all the folds of the vaginal mucosa more effectively than vinegar (surface tension of 72 dynes/cm.). It also makes cell walls of infecting organisms more susceptible to therapy.

MASSENGILL® POWDER

the buffered acid vaginal douche with low surface tension

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Massengill Powder soothes inflamed tissues, deodorizes, and tends to diminish excessive vaginal secretions. Patients like its clean, refreshing odor.

Massengill Powder is indicated for routine feminine hygiene to guard against infection, and as an adjunct in the management of candida, trichomonas, staphylococcus, and streptococcus vaginal infections.

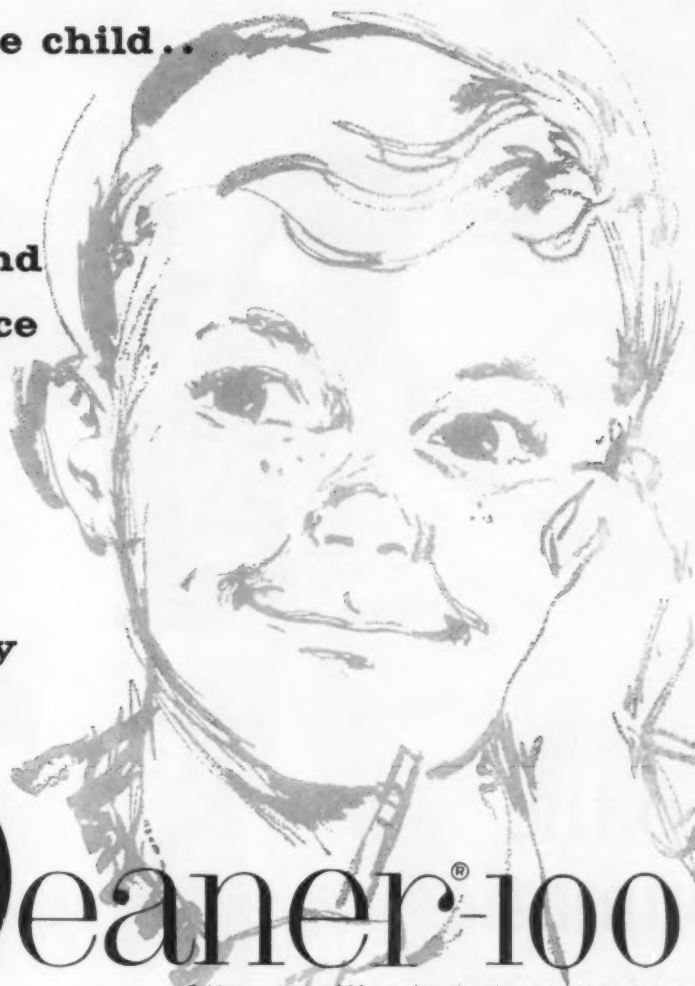
Contains: Ammonium Alum, Boric Acid, Phenol, Menthol, Berberine, Thymol, Eucalyptol, and Methyl Salicylate. Write for samples and detailed literature.

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Bristol, Tennessee • New York • Kansas City • San Francisco

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school-age child...**

**when
learning
lags behind
intelligence
and
behavior
problems
disturb
the family**



Deaner[®]-100

Tablets containing 100 mg. deanol as the acetamidobenzoate

The most frequently reported observations are improvement in social adaptation and scholastic performance, lengthening of attention span, and decrease in overactivity and irritability.

Deanol is a normal component of the brain of man.

Deaner-100 is virtually free from side-actions. It is not an MAO inhibitor. The only contraindication is grand mal epilepsy and mixed epilepsy with grand mal component.

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keep the
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You now have complete therapy for rheumatic disorders—DELENAR resolves musculoskeletal inflammation rapidly with the newest steroid . . . relaxes the spasm with a proved muscle relaxant . . . relieves the pain with a buffered analgesic. Now you can restore comfortable motion safely, surely with DELENAR in . . . RHEUMATISM • RHEUMATOID ARTHRITIS • TRAUMATIC ARTHRITIS EARLY OSTEOARTHRITIS • FIBROSITIS • CHRONIC FIBROMYOSITIS RHEUMATOID SPONDYLITIS • TENDINITIS • LOW BACK COMPLAINTS.



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RESOLVES THE INFLAMMATION

RELAXES THE SPASM

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Lowest dosage steroid for effective
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Formula

Dexamethasone* 0.15 mg.

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Aluminum Aspirin 375 mg.

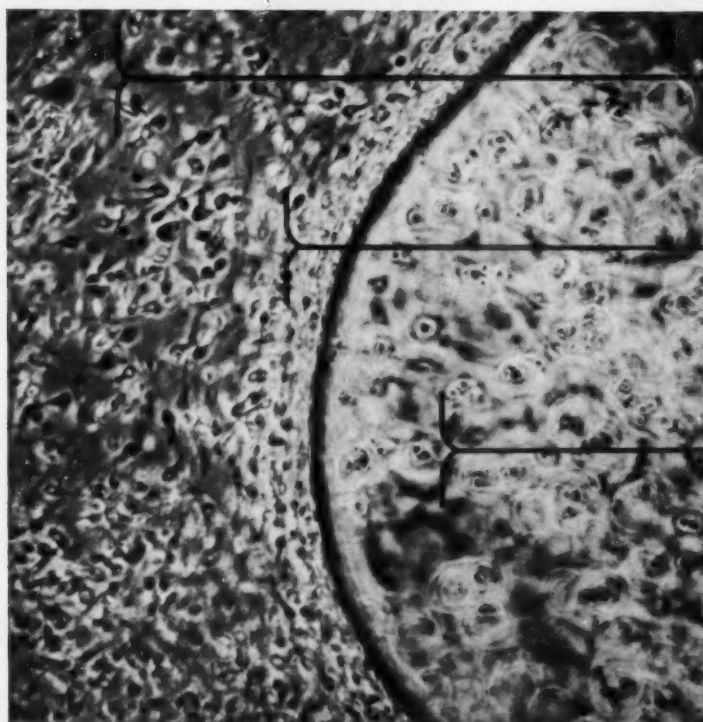
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snowy white — dry — static — free of messiness



ALIVE
in seminal fluid —
spermatozoa viable
and highly motile before
reaching interface of
seminal fluid and
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spermatozoa dead and
buried — killed within the
distance they normally
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Simple, effective conception control —
without an occlusive device^{1,2}

1. Goldstein, L. Z.: *Obst. & Gynec.* 10:133 (Aug.) 1957.
2. Finkelstein, R., and Goldberg, R. B.: *Am. J. Obst. & Gynec.* 78:657 (Sept.) 1959.

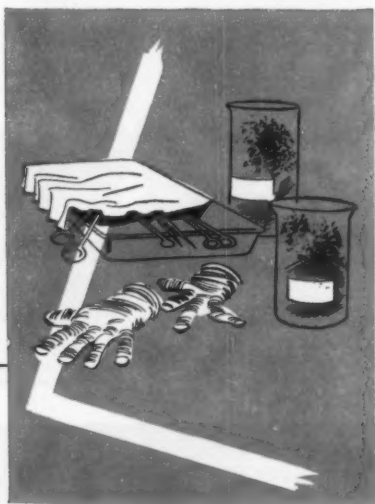
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Nonylphenoxypolyethoxyethanol 1%.

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Coroner's Corner

A beautiful imported German apothecary jar will be sent to each contributor of an unusual case report.

The doctor from the emergency room recognized the woman as he helped her husband drag her limp body from the car. Two days before he had treated her facial bruises after she had filed a complaint against her common-law mate. Now the right eye and cheek were a swollen black and blue mass. But there was nothing to be done for her—she was dead.

After getting the woman inside the hospital, the husband excused himself, saying he had "to put a nickel in the parking meter." The time was 6 A.M., too early for parking meters to be in operation. Orders went out for the man's arrest.

The autopsy landed me in a quandry. Massive hemorrhage and edema, no fat embolism, no alcohol—also no cause of death. The newspapers and the police termed it a homicide. However the landlord of the hapless couple related that they had made up after her beating. The husband had appeared very solicitous, and had brought home for the woman's comfort an icebag, a quantity of crushed ice and a bottle of aspirin. "Examine for salicylates," I told the toxicologist.

The blood salicylate level was 400 mg.% (therapeutic level: 30 mg.%). The newspapers carried the verdict: accidental death due to aspirin poisoning, with blunt force injury to the face as contributory cause of death.

The hard-fisted husband gave himself up after a week. The judge sentenced him to one year in jail on a plea of guilty to aggravated assault. There was no jury involved, no fuss, no bother, which satisfied me. You see, I despise trial by jury as a primitive type of justice. One question intrigues me though: how many pills did those loving hands dish out?

ROBERT HAUSMAN, M.D.
San Antonio, Texas



metabolic therapy in the "therapeutic" jar

All alcoholics, whether cirrhotic or not, should receive high levels of B-complex and C vitamins' as provided by STRESSCAPS, since the reversal of nutritional failure and its resultant morbidity depends largely on the water-soluble vitamins. Therapeutically important, the decorative jar serves as a constant dosage reminder for the alcoholic patient... who frequently is antagonistic to rehabilitation.

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1. Davidson, C. S.: *Am. J. Med.*, 25:600 (Nov.) 1959.

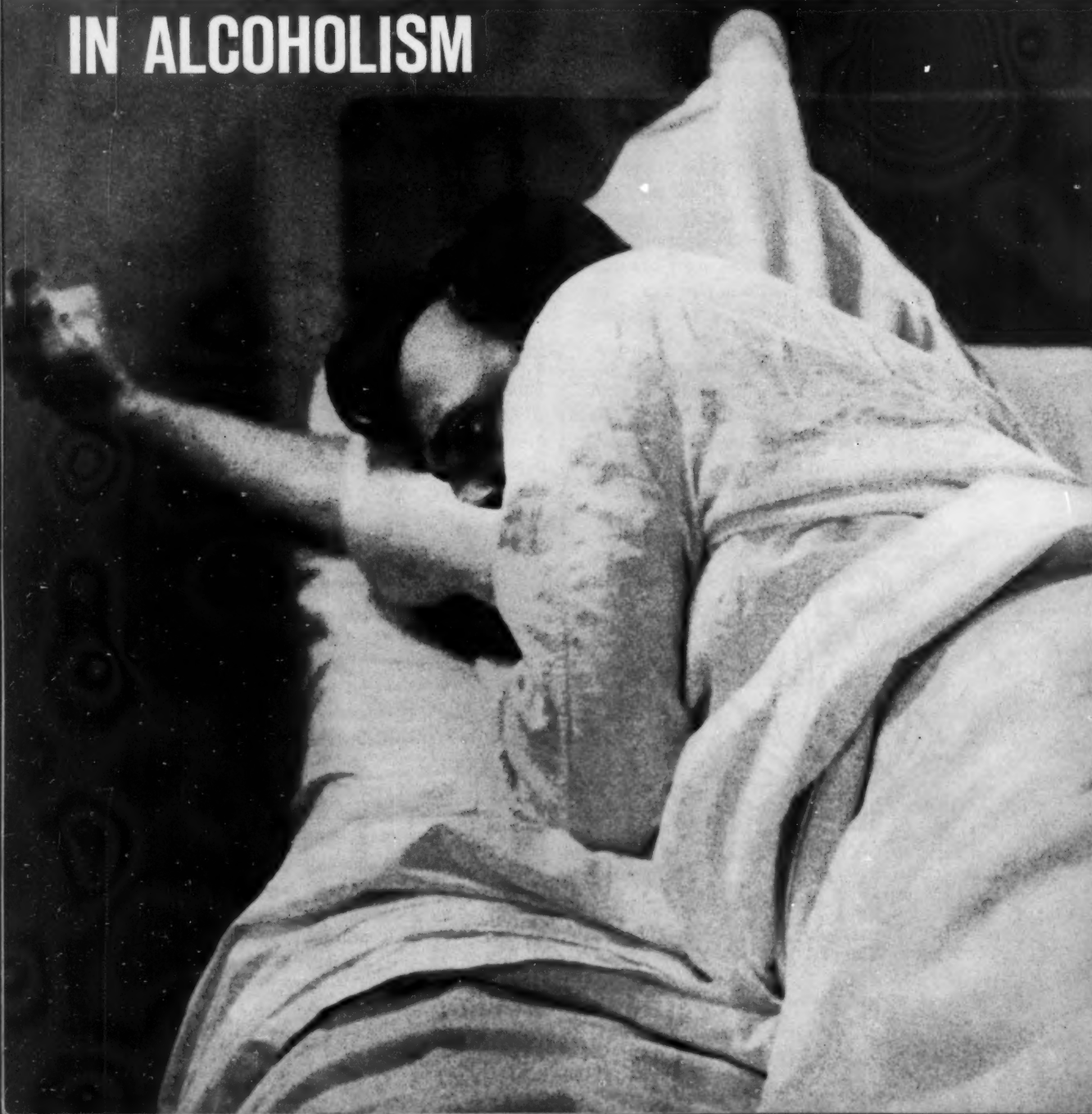
LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

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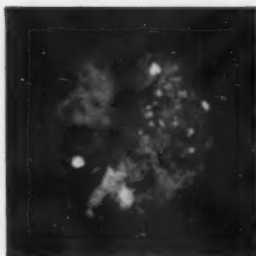


IN ALCOHOLISM

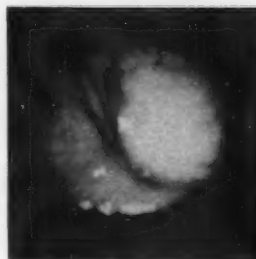


Excellent results in ulcerative colitis even where other steroids have failed

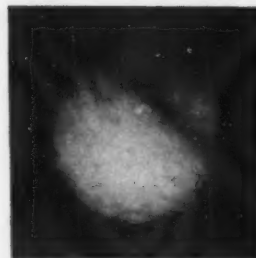
*Proctoscopic view
of the sigmoid
in acute stage
of ulcerative
colitis*



*Proctoscopic view
of the sigmoid
following
Depo-Medrol
retention enemas
for acute stage
of ulcerative
colitis*



*Proctoscopic view
of sigmoid colon
in a normal person*



In controlling ulcerative colitis (recurrent, moderately severe, severe, and resistant), Depo-Medrol[†] can be given topically (by enema or rectal instillation) in requisitely large doses without producing significant side effects. Excellent results are obtainable even where other steroids have failed and improvement continues on oral Medrol maintenance dosage.

**there is only one
methylprednisolone,
and that is**

Medrol^{*}

**the corticosteroid
that hits the disease,
but spares the patient**

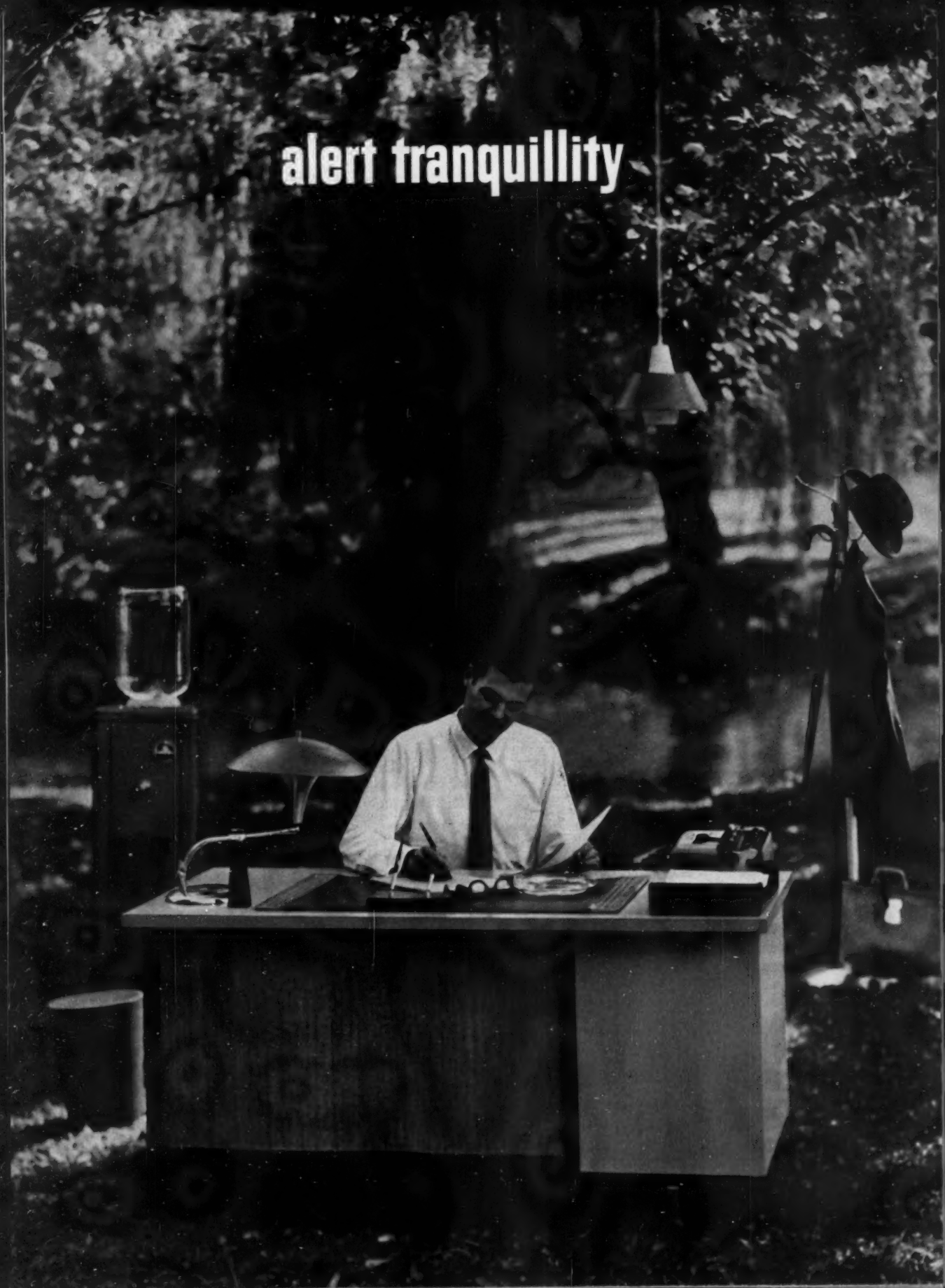


Medrol is supplied as 4 mg. tablets in bottles of 30, 100 and 500; as 2 mg. tablets in bottles of 30 and 100; and as 16 mg. tablets in bottles of 50. Depo-Medrol is supplied as 40 mg. per cc. injectable suspension in 1 cc. and 5 cc. vials. Mode of administration: Depo-Medrol (40-120 mg.) given as retention enema or by continuous drip three to seven times weekly.

^{*}Trademark, Reg. U. S. Pat. Off. — methylprednisolone, Upjohn


[†]Trademark

alert tranquillity



a new, improved, more potent relaxant for anxiety and tension

- effective in half the dosage required with meprobamate
- much less drowsiness than with meprobamate, phenothiazines, or the psychosedatives
- does not impair intellect, skilled performance, or normal behavior
- neither depression nor significant toxicity has been reported

 **Striatran** ^{alert tranquility}
EMYLCAMATE[®]

- a familiar spectrum of antianxiety and muscle-relaxant activity
- no new or unusual effects—such as ataxia or excessive weight gain
- may be used in full therapeutic dosage even in geriatric or debilitated patients
- no cumulative effect
- simple, uncomplicated dosage, providing a wide margin of safety for office use

STRIATRAN is indicated in anxiety and tension, occurring alone or in association with a variety of clinical conditions.

Adult Dosage: One tablet three times daily, preferably just before meals. In insomnia due to emotional tension, an additional tablet at bedtime usually affords sufficient relaxation to permit natural sleep.

Supply: 200 mg. tablets, coated pink, bottles of 100.

While no absolute contraindications have been found for Striatran in full recommended dosage, the usual precautions and observations for new drugs are advised.

For additional information, write Professional Services,
Merck Sharp & Dohme, West Point, Pa.



MERCK SHARP & DOHME, DIVISION OF MERCK & CO., INC., WEST POINT, PA.

STRIATRAN IS A TRADEMARK OF MERCK & CO., INC.

this hypertensive
patient prefers
Singoserp...
and so does
his physician

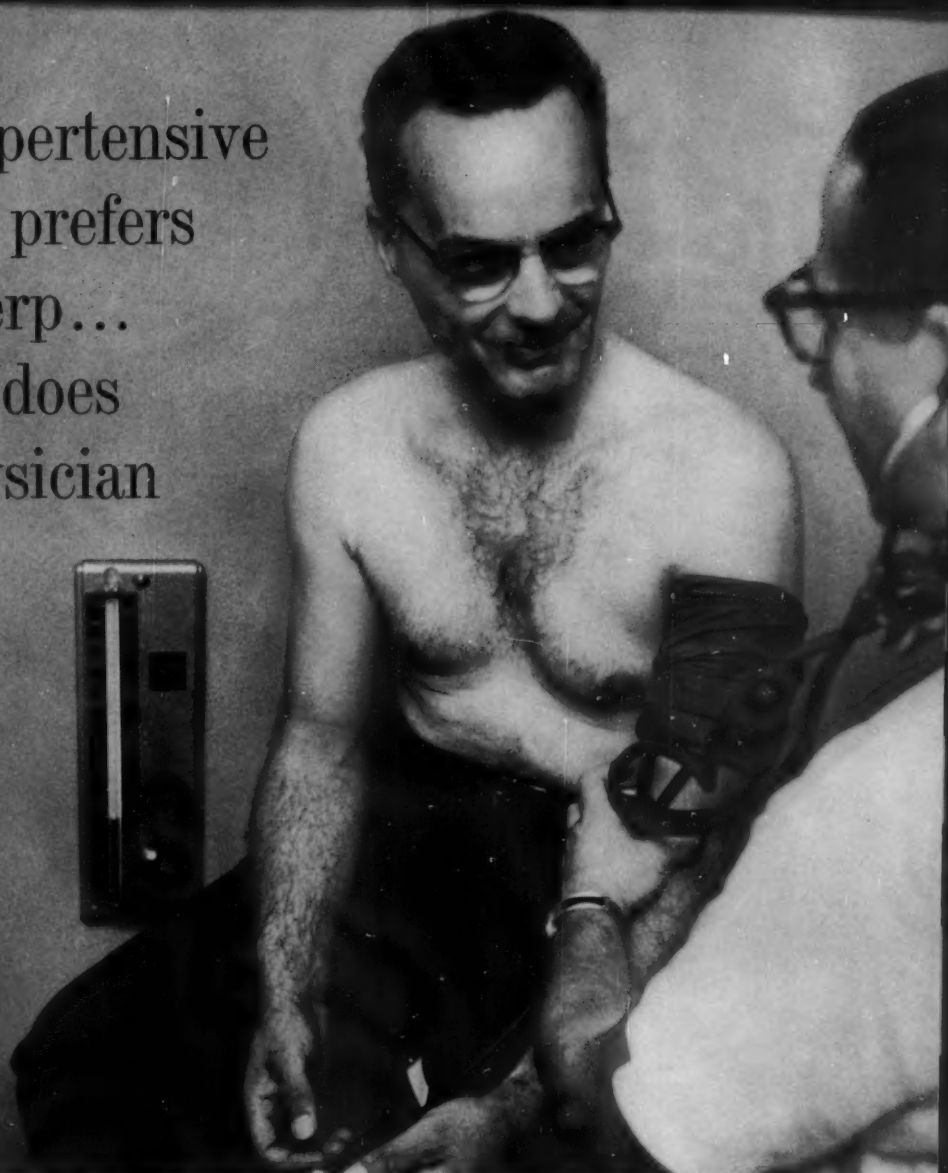


Photo used with patient's permission.

Patient's comment: "The other drug [whole root rauwolfia] made me feel lazy. I just didn't feel in the mood to make my calls. My nose used to get stuffed up, too. This new pill [Singoserp] doesn't give me any trouble at all."

Clinician's report: J. M., a salesman, had a 16-year history of hypertension. Blood pressure at first examination was 190/100 mm. Hg. Whole root rauwolfia lowered pressure to 140/80 — but side effects were intolerable. Singoserp, 0.5 mg. daily, further reduced pressure to 130/80 and eliminated all drug symptoms.

Many hypertensive patients and their physicians
prefer Singoserp® because it usually lowers
blood pressure without rauwolfia side effects

SUPPLIED: Singoserp Tablets, 1 mg. (white, scored). Also available: Singoserp®-Esidrix® Tablets #2 (white), each containing 1 mg. Singoserp and 25 mg. Esidrix; Singoserp®-Esidrix® Tablets #1 (white), each containing 0.5 mg. Singoserp and 25 mg. Esidrix. Complete information sent on request.

Singoserp® (syrosingopine CIBA) Singoserp®-Esidrix® (syrosingopine and hydrochlorothiazide CIBA)

CIBA
SUMMIT, NEW JERSEY

2/284488

New

Enhances Vitality and Still Insures Weight Loss

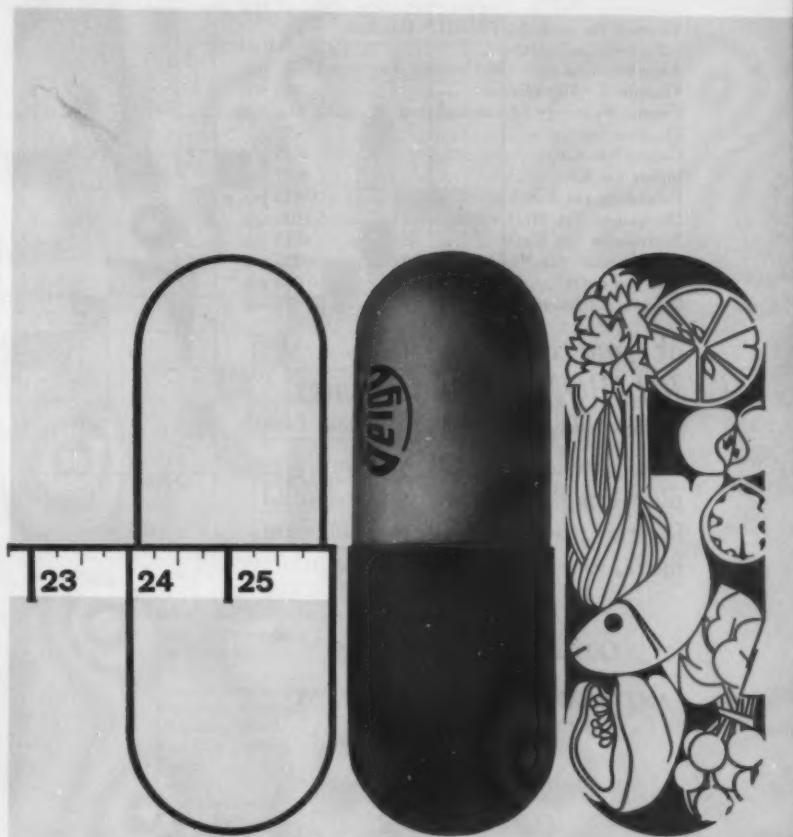
Prelu-Vite^{T.M.}

brand of phenmetrazine HCl with vitamins and minerals

Now, Prelu-Vite helps to fortify the patient's nutritional status and sense of well-being without jeopardizing the success of the weight-reducing program.

By improving nutritional status Prelu-Vite makes it easier for the patient to retain the initial zeal for reducing... facilitates the retention of enthusiastic cooperation in pursuing therapy to a successful conclusion.

With Prelu-Vite, as with Preludin, a weight loss 2-5 times that obtainable by dietary restriction alone, is readily achieved without the occurrence of annoying side reactions.



Geigy

Availability:

Prelu-Vite[™] Capsules, each containing 25 mg. of Preludin (brand of phenmetrazine HCl) with vitamins A, B, C and D and 5 minerals.

Under license from C. H. Boehringer Sohn, Ingelheim.

Also available:

Preludin[®] Endurets[®] prolonged-action tablets (75 mg.) for once daily administration; and as regular Preludin tablets (25 mg.) for b.i.d. or t.i.d. administration.

Geigy, Ardsley, New York



321-60

*now—two FILIBON formulas
for individualized pre- and postnatal support*

*two formulations—both phosphorus-free, both with
noninhibitory intrinsic factor and well-tolerated iron—
providing greater flexibility in meeting individual
requirements in pregnancy and lactation.*

you can recommend:

FILIBON® Capsules

Prenatal Supplement Lederle

Each capsule contains:

Vitamin A (acetate).....	4,000 U.S.P. Units
Vitamin D	400 U.S.P. Units
Thiamine Mononitrate (B ₁).....	3 mg.
Pyridoxine (B ₆).....	1 mg.
Niacinamide	10 mg.
Riboflavin (B ₂)	2 mg.
Vitamin B ₁₂ with AUTRINIC® Intrinsic Factor Concentrate	$\frac{3}{4}$ N.F. Oral Unit
Ascorbic Acid (C) (as Calcium Ascorbate) ..	50 mg.
Vitamin K (Menadione)	0.5 mg.
Ferrous Fumarate (Elemental iron, 30 mg.) ..	91.2 mg.
Fluorine (as CaF ₂)	0.015 mg.
Copper (as CuO)	0.15 mg.
Iodine (as KI)	0.01 mg.
Potassium (as K ₂ SO ₄)	0.835 mg.
Manganese (as MnO ₂)	0.05 mg.
Magnesium (as MgO)	0.15 mg.
Molybdenum (as Na ₂ MoO ₄ ·2H ₂ O).....	0.025 mg.
Zinc (as ZnO)	0.085 mg.
Calcium Carbonate	575 mg.

or you can prescribe:

FILIBON® F.A. Capsules

Prenatal Supplement with Folic Acid Lederle

*The complete FILIBON formula,
plus 1 mg. of Folic Acid, essential
for the prevention of the common
megaloblastic anemias of pregnancy.*



LEDERLE LABORATORIES
A Division of
AMERICAN CYANAMID COMPANY
Pearl River, New York



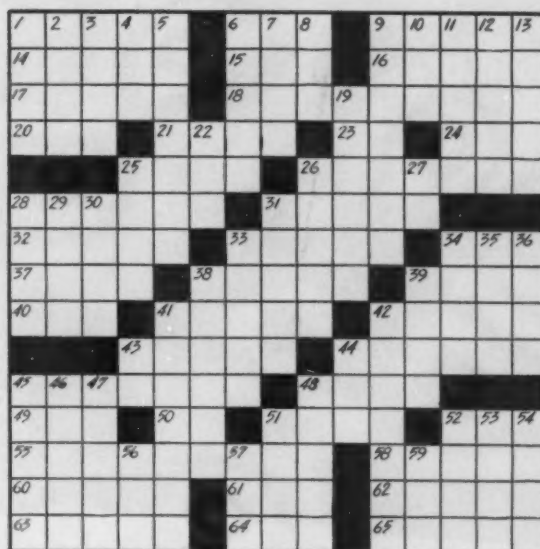


Medical Teasers

A challenging crossword puzzle for the physician
(Solution on page 182a)

ACROSS

1. Filterable agent in disease
6. Common *Trichina* Host
9. Litmus—
14. Gruel made of maize meal (Sp. Amer.)
15. — Serrata
16. Oil formerly used to treat ulcers
17. The body's largest gland
18. Inflammation of the stomach
20. Compass direction (abbr.)
21. Resound
23. Right (abbr.)
24. Malt beverage
25. Represent in drawing
26. Rubella
28. Prescribed amount of medicine
31. Swollen
32. Texas mission besieged in 1836
33. Large intestine
34. Male offspring
37. Monetary penalty
38. Faux pas (slang)
39. Half (prefix)
40. Pedal digit
41. L'Hotel Dieu is here
42. Pertaining to the eye
43. Pertaining to the ilium
44. Narcotic
45. Induct into office
48. Abdominal fat of a ruminant
49. A marshal of France
50. Symbol for neon
51. — Price test for vitamin A in oils
52. Ulmus
55. Biotypes
58. Cessation of respiration
60. Hawaiian shrub used for making nets



61. Biblical high priest
62. Entire
63. Tether (obs. var.)
64. Sebaceous cyst
65. Put forth, as effort

DOWN

1. Farewell (L.)
2. Inflammation (suffix)
3. Wander
4. Diminutive suffix for nouns
5. Creeping eruption
6. Golf's "Ben"
7. Relating to the mouth
8. Nitrous oxide is one
9. Relate
10. Mohammed's son-in-law
11. Member of a corolla (Botani)

12. Zola's given name
13. What the temperature does in pneumonia
19. Parkinsonian has this
22. —tic; lpecac is one
25. Physically disabled
26. Stubborn ones
27. Sine Die (Abbr.)
28. Foolish
29. Medley
30. Mentally sound
31. Characterized by continuous tension
33. Skeleton of marine coelenterates
34. Bristle
35. Leave out
36. Fastidious
38. Hyde—; American botanist

39. Expectorate
41. Relating to the sole of the foot
42. Perform surgery
43. Pronoun
44. Possessive pronoun
45. Cast metal mass
46. Darnel (local U.S.)
47. An ecclesiastical council
48. The black buck of India
51. Suffix denoting a swelling
52. Grafting (Her.)
53. Shakespearean king
54. The seed of barley
56. Unit
57. Church bench
59. An eruptive disease



**NO NEED TO WAKE HIM FOR MEDICATION...
JUST ONE TABLET
A DAY
IS REQUIRED**

• **PARKE, DAVIS & COMPANY**
Detroit 32, Michigan 48209

PARKE-DAVIS



BECAUSE...JUST ONE TABLET MAINTAINS EFFECTIVE SULFA ACTIVITY FOR 24 HOURS

(sulfamethoxyypyridazine, Parke-Davis) [®]
Midicel

When sulfa therapy is indicated, long-acting single-dose MIDICEL affords many significant clinical advantages: **ECONOMY AND CONVENIENCE**—1-tablet-a-day regimen reduces possibility of omitted doses, lets the patient sleep through the night. **ENHANCED EFFECTIVENESS**—rapid absorption together with slow excretion assures dependable bacteriostasis in urinary tract infections, certain respiratory infections, bacillary dysenteries, as well as surgical and soft tissue infections caused by sulfonamide-sensitive organisms. **WELL TOLERATED**—low dosage and high solubility minimize possibility of crystalluria.

Adult dosage: Initial (first day)—2 tablets (1 Gm.) for mild or moderate infections, or 4 tablets (2 Gm.) for severe infections. Maintenance—usually 1 tablet (0.5 Gm.) daily. **Children's dosage:** According to weight. See literature for details of dosage and administration. **Available:** Quarter-scored tablets of 0.5 Gm., bottles of 24, 100 and 1,000.

and for children...MIDICEL ACETYL SUSPENSION (N¹ acetyl sulfamethoxyypyridazine, Parke-Davis) tempting butterscotch flavor and, of course, only one dose a day. **Children's dosage:** According to weight. **Available:** 250 mg. per 5 cc., in 4-oz. bottles.

"VANAY"
*Vaginal
 Cream meets
 the challenge
 of monilial
 vaginitis*



In pregnancy, diabetes, and wherever monilial overgrowth is present, "Vanay" Vaginal Cream provides the two essential requirements for effective therapy. Its unique enzyme-controlled mode of action 1) insures a continuous therapeutic fungistatic effect without danger of local irritation; 2) restores and maintains a physiologic pH and normal vaginal flora—reducing risk of reinfection. Patient acceptance is excellent because "Vanay" is nonsensitizing, nonirritating, nonstaining, and odor-free.

"Vanay" Vaginal Cream is specific antifungal therapy in monilial vaginitis; it may be used as adjunctive therapy in trichomoniasis. (Usual range of dosage: 2-4 grams daily.)

Supplied: "Vanay" Vaginal Cream—Brand of Triacetin 250 mg./Gm. in nonliquefying base. Tubes of 1½ oz. with 15 disposable applicators.



In senile vaginitis, "Premarin" Vaginal Cream restores the influence of estrogen directly to the vaginal mucosa to produce a healing and soothing effect. Also valuable pre- and postoperatively in postmenopausal patients undergoing vaginal surgery. "Premarin" H-C Vaginal Cream (with hydrocortisone) is available when antipruritic, anti-inflammatory action is also desired.



AYERST LABORATORIES • New York 16, N. Y. • Montreal, Canada

"Premarin®"—Conjugated estrogens (equine)

6035



Letters to the Editor

This department is offered as an Open Forum for the discussion of topical medical issues. All letters must be signed. However, to protect the identity of writers who are invited to comment on controversial subjects, names will be omitted when requested.

Smoking and Lung Cancer

Just a word of congratulation and appreciation for your editorial "Smoking and Lung Cancer" in the MEDICAL TIMES for April 1960, pp. 512-514. I particularly liked the barb you gave the Surgeon General of the Public Health Service. When I read his outpourings in the daily press, I wonder how any man in his position can get so far out on a thin limb.

JAMES H. HUTTON, M.D.
Chicago, Illinois

● . . . he has just announced that air pollution is important. He is still holding up the oral polio vaccine. ED.

The Incurably Ill

I have just read the article by you, "Moral, Religious, National, and Legal Responsibilities of Physicians in the Care of the Incurably Ill or the Dying." It is such a fine discussion on the moral, religious and legal concepts concerned with the hopelessly ill that I felt impelled to write and tell you so.

I, as most physicians, have walked repeatedly through hospital wards and seen patients who are hopelessly ill, without any knowledge of their surroundings, being kept alive through the magics of modern medical art and drugs, without any purpose whatever. It is, of course, not easy to change the long current religious and moral concept of euthanasia, but I am surprised and delighted to learn, as you pointed out in your editorial, that there is emerging a new approach to this problem even among prelates of the Catholic Church.

I hope your editorial receives wide publicity.

I hope also that it will stimulate further thought on this subject and that perhaps as a result the Church and the medical profession together may decide that when a patient can no longer receive any tangible benefits from the prolongation of life, the doctor's sole remaining duty is to see that the patient gets good nursing care and alleviation of his pain.

PAUL H. STREIT, M.D.
Washington, D. C.

● In my large service at the Kings County Hospital, where grandfathers and grandmothers are being increasingly abandoned by their own kith and kin, this problem constitutes itself as a major one as far as all of us are concerned. And the trouble is, you know, that it is markedly on the increase. ED.

Breast Cancer

. . . more extensive treatment of the general subject of therapy in advanced breast cancer would be suitable. I would be delighted to prepare such an article for your journal. This would be done in collaboration with several members of our Tumor Board.

VINCENT P. HOLLANDER, M.D.
Charlottesville, Virginia

● Dr. Bloodgood aptly said to the great enjoyment of Hopkins students for many years "never miss an opportunity to feel a woman's breast." Constantly I see women in our wards with advanced cancer of the breast, who had gone to doctors who did not feel their breasts. ED.

Concluded on page 56a

INCREASED LIFE EXPECTANCY FOR HYPERTENSIVES

"Life expectancy seems to be the one criterion that is most reliable and least questioned as a method of evaluating treatment for patients with elevated blood pressure."¹ "It is evident that effective therapy of hypertension will prolong the life of the patient by preventing the dreaded complications of this disease in the brain, the heart and the kidneys ." "There is no doubt of the prolongation of life in group 3 and 4 (Keith-Wagener-Barker) by adequate antihypertensive treatment. Some authorities report a 50 per cent, five year survival ratio for treated patients with malignant hypertension as against a 1 per cent survival ratio for untreated patients."²

Evaluation based on life expectancy is extremely difficult because of the peril of maintaining an untreated control group.¹ The doctor, however, can evaluate the symptoms related to the elevated blood pressure. . . . We know that retinopathy may improve, the heart may be reduced in size, the electrocardiogram may improve and in favorable cases the blood urea nitrogen level may fall.³ These are reasonably objective criteria on which to base one's evaluation of treatment.¹

On the succeeding page is evidence that Unitensin included in any therapeutic regimen may improve the results in hypertension as measured by a regression of objective clinical changes in a substantial proportion of the patients treated.

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2. Waldman, S., and Pelnor, L.: *Am. Pract. & Digest. Treat.* 10:1139, 1959.
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7. Cherny, W. B., *et al.*: *Obst. & Gynec.* 9:515, 1957.
8. Raber, P. A.: *Illinois M. J.* 100:171, 1955.
9. McCall, M. L., *et al.*: *Obst. & Gynec.* 6:297, 1955.
10. Finnerty, F. A.: *Am. J. Med.* 17:629, 1954.

Unlike diuretics or ganglionic blocking agents, Unitensen lowers blood pressure through wide-spread vasorelaxation. Normal vasomotor responses are not altered, and there is no venous pooling with resulting postural hypotension.³⁻⁵ Through alleviation of cerebral vasospasm, Unitensen promotes cerebral blood flow and oxygen utilization.⁶⁻⁹ Furthermore, Unitensen increases cardiac efficiency, improves renal function and tends to arrest the progress of vascular damage.^{3,4,10}

Progress of Objective and Subjective Symptoms in Grades III and IV Hypertension Following Treatment with Unitensen and Unitensen-R

Observations in Patients* Treated up to 2 Years

Observations in Patients* Treated up to 3½ Years

The Course of Subjective Symptoms

Symptom	Number**	Improved	% Improved
Headache	27	21	77.7
Palpitation	20	13	65.0
Angina	15	9	60.0
Dyspnea	17	8	47.0

Number**	Improved	% Improved
43	38	88.0
29	19	65.5
21	16	76.0
27	14	51.0

Objective Changes Following Treatment

Finding	Number**	Improved	% Improved
Funduscular Changes	41	24	58.5
Enlarged Heart	20	13	65.0
Abnormal ECG	37	10	27.0
Proteinuria	31	12	38.7
Nitrogen Retention	17	6	35.2

Number**	Improved	% Improved
59	38	66.0
35	23	65.7
45	25	55.5
43	27	62.7
28	10	35.7

Left hand charts from Clinical Exhibit "The Ambulatory Patient with Hypertension" presented AMA Convention, San Francisco, June 22-27, 1958, by B. M. Cohen, M.D.

*All patients in this study were initially classified as Smithwick Grades III and IV.

**Expressed as the number of patients exhibiting the symptom recorded.

Right hand charts include patients previously reported who had been continuously maintained on Unitensen and Unitensen-R, plus additional patients later added to the study. From Clinical Exhibit "The Office Diagnosis and Treatment of the Patient with Hypertension" presented American Academy of General Practice, Indianapolis, March 18-19, 1959, by B. M. Cohen, M.D.

UNITENSEN®

Each tablet contains: Cryptenamine (tannates) 2.0 mg.

UNITENSEN-PHEN®

Each tablet contains: Cryptenamine (tannates) 1.0 mg., Phenobarbital 15 mg.

UNITENSEN-R®

Each tablet contains: Cryptenamine (tannates) 1.0 mg., Reserpine 0.1 mg.

UNITENSEN® AQUEOUS

Each cc. contains: 2.0 mg. cryptenamine (acetates) in isotonic saline

new from Neisler

Analexin®

a new class of drug

for the relief of pain and muscle tension

Neisler

IRWIN, NEISLER & CO.
Decatur, Illinois

DORIDEN: MORE SUITABLE FOR MORE
PATIENTS FOR MORE SATISFYING SLEEP



Doriden offers sound, restful sleep for patients who are sensitive to barbiturates, elderly patients, patients with low vital capacity and poor respiratory reserve and those who are unable to use barbiturates because of hepatic or renal disease. Onset of sleep with Doriden is smooth and gradual, usually with no preliminary excitation. Doriden acts within 30 minutes, and sleep lasts for 4 to 8 hours. Except in rare cases, no "hang-over" or "fog," because Doriden is rapidly metabolized. Average dose for insomnia: 0.5 Gm. at bedtime. SUPPLIED: Tablets, 0.5 Gm., 0.25 Gm. and 0.125 Gm. Complete information sent on request.

DORIDEN
(glutethimide CIBA)

CIBA
SUMMIT, N. J.

"Constipation often occurs during pregnancy, but it is easily corrected. Just take two Caroid and Bile Salts Tablets before retiring whenever you need a laxative. They act gently without cramping or griping."



Caroid & Bile Salts Tablets

The combined action of the principal ingredients in Caroid and Bile Salts Tablets provides 3-way, physiologic relief of constipation.

Caroid® — potent proteolytic enzyme for improved protein digestion.

Bile salts — choleric for treatment of biliary stasis; hydrotropic for soft, well-formed stools.

Stimulant — to improve smooth muscle tone, restore regularity.

Dosage: 1 or 2 Caroid and Bile Salts Tablets should be taken with at least 1 glass of water about 2 hours after breakfast and at bedtime.

Samples on Request.

American Ferment Co., Inc., 1450 Broadway, New York 18, N. Y.

Coming next month . . .

- *Aviation Medicine to Space Medicine*
By Col. Paul A. Campbell, USAF, MC, Ass't to Commander for Advanced Studies Hdqtrs., USAF Aerospace Medical Center (ATC) Brooks Air Force Base, Texas.
- *Aprosexia: Concentration Difficulty in University Students*
By Martin H. Keeler, M.D., Ass't Professor, Dept. of Psychiatry, School of Medicine, University of North Carolina, Chapel Hill, North Carolina.
- *Rehabilitation of Patients with Hearing Loss*
By Major James P. Albrite, Director; and Mr. David M. Resnick, Supervisor; Biocoustic Section, Army Audiology and Speech Center, Walter Reed General Hospital, Walter Reed Army Medical Center, Washington, D. C.
- *Thzrapy of Essential Hypertension*
By Albert N. Brest, M.D., Director; Hypertension Clinic, Department of Medicine, Hahnemann Medical College and Hospital, Philadelphia, Pennsylvania.
- *Intoxications in Children*
By Robert C. Fairchild, M.D., Mission Clinic, Mission, Kansas.
- *Serotonin and Brain Functions*
By Gerald D. Klee, M.D., Ass't Professor of Psychiatry, Psychiatric Institute, University of Maryland, School of Medicine, Baltimore, Maryland.
- *Brain Tumors: A Diagnostic Approach*
By Frank A. Palazzo, M.D., Senior Instructor, Neurological Surgery, St. Louis University School of Medicine, St. Louis, Missouri.
- *Homosexual Transmission of Venereal Disease*
By E. Randolph Trice, M.D., Associate in Medicine (Dermatology), Medical College of Virginia, Richmond, Virginia.
- *Psychological Management of Pre-School Child Involved in Auto Accidents*
By Morris J. Goldman, M.D., Philadelphia, Pennsylvania.

LETTERS

Concluded from page 51a

Mystery Solved

The procedure depicted on pages 764 and 765 of the June issue of *MEDICAL TIMES* is a diagnostic procedure by the Abrams Method. The man with the electrode on his forehead is not a patient, but a well subject. The unknown specimen of blood or tissue was placed in the small box which was connected in series with several rheostats.

The diagnosis was made by percussion over various areas of the subjects abdomen. A change from a high to low percussion note at specific areas—at certain rheostat settings—was supposed to indicate positive diagnosis of a specific disease. A chart of diseases with their rheostat settings was supplied with the machine.

The Abrams Method was condemned by the American Medical Association in 1923. I remember this quite well, because I saw this method used by a Dallas, Texas, doctor while I was a medical student at Baylor Medical College. The demonstration was in no way connected with the medical school.

R. M. BELLAMY, M.D.
Pampa, Texas

• Thanks to Dr. Bellamy and also, Dr. Oliver Field who solved the mystery of the machine pictured in our "Remember When?" department of the June issue. ED.



"You may get another pain around the first of the month."

anticholinergic
**KEEPS
THE STOMACH
FREE OF PAIN**

tranquilizer
**KEEPS
THE MIND OFF
THE STOMACH**



Milpath acts quickly to suppress hypermotility, hypersecretion, pain and spasm, and to allay anxiety and tension with minimal side effects.

**AVAILABLE
IN TWO
POTENCIES:**

Milpath-400 — Yellow, scored tablets of 400 mg. Miltown (meprobamate) and 25 mg. tridihexethyl chloride. Bottle of 50.

Dosage: 1 tablet t.i.d. at mealtime and 2 at bedtime.

Milpath-200 — Yellow, coated tablets of 200 mg. Miltown (meprobamate) and 25 mg. tridihexethyl chloride. Bottle of 50.

Dosage: 1 or 2 tablets t.i.d. at mealtime and 2 at bedtime.

Milpath®

® Miltown + anticholinergic

WALLACE LABORATORIES New Brunswick, N. J.





The role of the husband as a carrier and as a cause of re-infection in vaginal trichomoniasis is well documented.¹⁻⁷

"Until and unless immunization is possible, definite prophylactic measures such as the use of condoms, at least during the course of therapy in the female, have the same importance in the eradication of this disease as the elimination of endogenous extravaginal foci of infections."³

ENLIST HIS COOPERATION—SPECIFY **RAMSES**[®]

the prophylactic with "built-in" sensitivity

Husbands readily cooperate when you recommend RAMSES prophylactics. The exquisite sensibility preserved by this tissue-thin, natural gum-rubber sheath of amazing strength and solid clinical reliability places RAMSES almost out of human awareness. Without imposition or deprivation for the sake of cure, the routine use of RAMSES with "built-in" sensitivity is readily adopted—even by the husband whose fear of sensation loss is a consideration.



RAMSES is a registered trade-mark of Julius Schmid, Inc.

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even if your patient is a whip snapper*
he'll soon be riding high again, thanks to

PARAFON[®]

(PARAFLEX[®] + TYLENOL[®])

for muscle relaxation plus analgesia

in arthritis

PARAFON[®]
with Prednisolone

McNEIL

McNeil Laboratories, Inc.
Philadelphia 32, Pa.

prescribe PARAFON in low back pain—sprains—

strains—rheumatic pains

Each PARAFON tablet contains:

PARAFLEX[®] Chlorzoxazone† 125 mg.

The low dosage skeletal muscle relaxant

TYLENOL[®] Acetaminophen 300 mg.

The superior analgesic in musculoskeletal pain

Dosage: Two tablets t.i.d. or q.i.d.

Supplied: Tablets, scored, pink, bottles of 50.

Each PARAFON with Prednisolone tablet contains:

PARAFLEX[®] Chlorzoxazone† 125 mg., TYLENOL[®]

Acetaminophen 300 mg., and prednisolone 1.0 mg.

Supplied: Tablets, scored, buff colored, bottles of 36.

Dosage: One to two tablets t.i.d. or q.i.d.

Precautions: The precautions and contraindications that apply to all steroids should be kept in mind when prescribing PARAFON with Prednisolone.

*tailman on hook-and-ladder fire engine

†U.S. Patent No. 2,895,877

018450



New medical survey shows what doctors consider most important in a laxative they would use or recommend:



To find out the qualities doctors consider most important in a laxative they would use or recommend, an independent research organization asked doctors across the country for their professional opinions. The survey findings show that doctors want a laxative that is (1) Gentle, (2) Effective and (3) Close to Natural Acting.

These are the qualities that have made pleasant-tasting Ex-Lax so widely used and recommended over the years—the same qualities that make Ex-Lax so well suited for 1960's professional needs.





economical maintenance therapy in atopic dermatoses

Long-term use of topical steroids has real advantages in most eczematous diseases; but this means daily applications for many weeks and even months after visible signs of the disease have disappeared.¹ The 0.25% hydrocortisone topicals afford therapeutic effectiveness at a fraction of the cost.²

1.) Stoughton, R. B.: Report To The Council; Steroid Therapy In Skin Disorders, J.A.M.A. 170:1311-1315 (July 11) 1959. 2.) Goodman, H.: Concentration of Topical Medications Dispersed in Evaporating Vehicles with Particular Reference to Hydrocortisone Alcohol, Clin. Med. 6:781-784 (May) 1959.



World Leader In Dermatologicals
DOME CHEMICALS INC.
New York Los Angeles



CORT-DOME® (pH 4.6)

0.25% micronized hydrocortisone alcohol in the exclusive ACID MANTLE® vehicle.

NEO-CORT-DOME™ (pH 4.6)

0.25% micronized hydrocortisone alcohol plus 5.0 mg./Gm. of neomycin sulfate in the exclusive ACID MANTLE vehicle.

CARBO-CORT™ (pH 4.6)

0.25% micronized hydrocortisone alcohol plus 3.0% liquor carbonis detergens in the exclusive ACID MANTLE vehicle.

CORT-QUIN™ (pH 4.5)

0.25% micronized hydrocortisone alcohol plus 1.0% diiodohydroxyquinoline in the exclusive ACID MANTLE vehicle.

COR-TAR-QUIN™ (pH 5.0)

0.25% micronized hydrocortisone alcohol plus 1.0% diiodohydroxyquinoline and 2.0% liquor carbonis detergens in the exclusive ACID MANTLE vehicle.

DOME

The exclusive ACID MANTLE vehicle potentiates the ingredients in DOME preparations . . . restores and maintains the normal protective acidity of the skin . . . and facilitates healing.

Available as CREMES in 1 oz. tubes, 4 oz. and 1 lb. jars; and as LOTIONS in 4 fl. oz. bottles.

These preparations are also available with higher hydrocortisone concentrations.

**three
therapies
of choice for
infected / inflamed / painful
ears**

Rarely Sensitizing



1 'AEROSPORIN'[®] brand Otic Solution

Comprehensive bactericidal/antifungal action — eradicates *Pseudomonas* and most other common causes of otitis. Hygroscopic; restores normal acid mantle.

Each cc. contains:

'Aerosporin' brand Polymyxin B Sulfate	10,000 Units
Acetic acid	1%
Propylene Glycol q.s. Sterile	

Available in dropper bottles of 10 cc.

2 'CORTISPORIN'[®] brand Otic Drops

Broad-spectrum bactericidal action plus effective anti-inflammatory and antipruritic therapy. Eradicates most common causes of otitis; restores normal acid mantle.

Each cc. contains:

'Aerosporin' brand Polymyxin B Sulfate	10,000 Units
Neomycin Sulfate	5 mg.
Hydrocortisone in a sterile, slightly acid, aqueous suspension	10 mg.

Available in dropper bottles of 5 cc.

3 'LIDOSPORIN'[®] brand Otic Solution

Acts quickly to relieve pain and itching associated with otitis externa. Bactericidal/antifungal action — eradicates *Pseudomonas* and most other common causes of otitis. Hygroscopic; restores normal acid mantle.

Each cc. contains:

'Aerosporin' brand Polymyxin B Sulfate	10,000 Units
Xylocaine* HCl brand lidocaine Hydrochloride (5%)	50 mg.
Propylene Glycol q.s. Sterile	

Available in dropper bottles of 10 cc.

*Reg. T.M. Astra Pharmaceutical Products, Inc. — U. S. Pat. No. 2,441,498

Literature available on request.



BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N. Y.



What's Your Verdict?

Edited by Ann Ledakowich, Member of the Bar of New Jersey

The case history and hospital record of a patient, admitted to the hospital for an appendectomy, was reviewed. Both surgeons and a qualified anesthetist agreed upon a spinal anesthetic. This was administered, and shortly thereafter the patient was left in the care of a nurse-anesthetist. A satisfactory level of anesthesia had been obtained and the patient's condition was good.

Some five minutes later, the nurse attempted to take the patient's blood pressure but could not get a reading. Oxygen was immediately administered, and an injection of Neosynephrine and an intravenous infusion were given. An incision was made to permit massaging of the heart so as to restore normality in the heart action and blood pressure. The appendectomy was then performed.

As a result of the cardiac arrest, the patient's brain failed to receive the necessary supply of oxygen, thereby causing serious damage, and necessitating care of the patient as a dependent person for the remainder of his life.

In a malpractice suit against the anesthetist and surgeons, negligence was charged in the use of a spinal upon a patient suffering from heart disease.

The hospital record, admitted into evidence at the trial, showed the patient had suffered at the age of eight from "acute rheumatic fever without rheumatic heart disease." There was a "question of transient systolic murmur



(brought out after exercise)" and a "suggestion of some enlargement of the left auricle posteriorly." In subsequent years, entries in the record raised "a question of soft mitral systolic murmur not transmitted" and suggested "the possibility of a mitral lesion." The most recent heart examination of the patient showed "no heart disease."

During the years, the patient had led a normal, active life and had participated in vigorous athletic competition. At the time of admission to the hospital, he had been playing semi-professional football.

The defense of the surgeons and anesthetist to the charge of negligence was that at the time of the operation there was no evidence of heart disease to eliminate the use of a spinal. The trial court upheld this defense. On an appeal taken, how would you decide?

Answer on page 232a.

for the silent syndrome*...

*the unmentioned edema, mood changes,
GI distress, preceding menstruation*

a comprehensive therapy

NEW

 **CYCLEX[®]**

HYDRODIURIL[®] WITH MEPROBAMATE
HYDROCHLOROTHIAZIDE

to relieve the symptoms

for EDEMA...

CYCLEX provides the prompt
diuresis of **HYDRODIURIL**

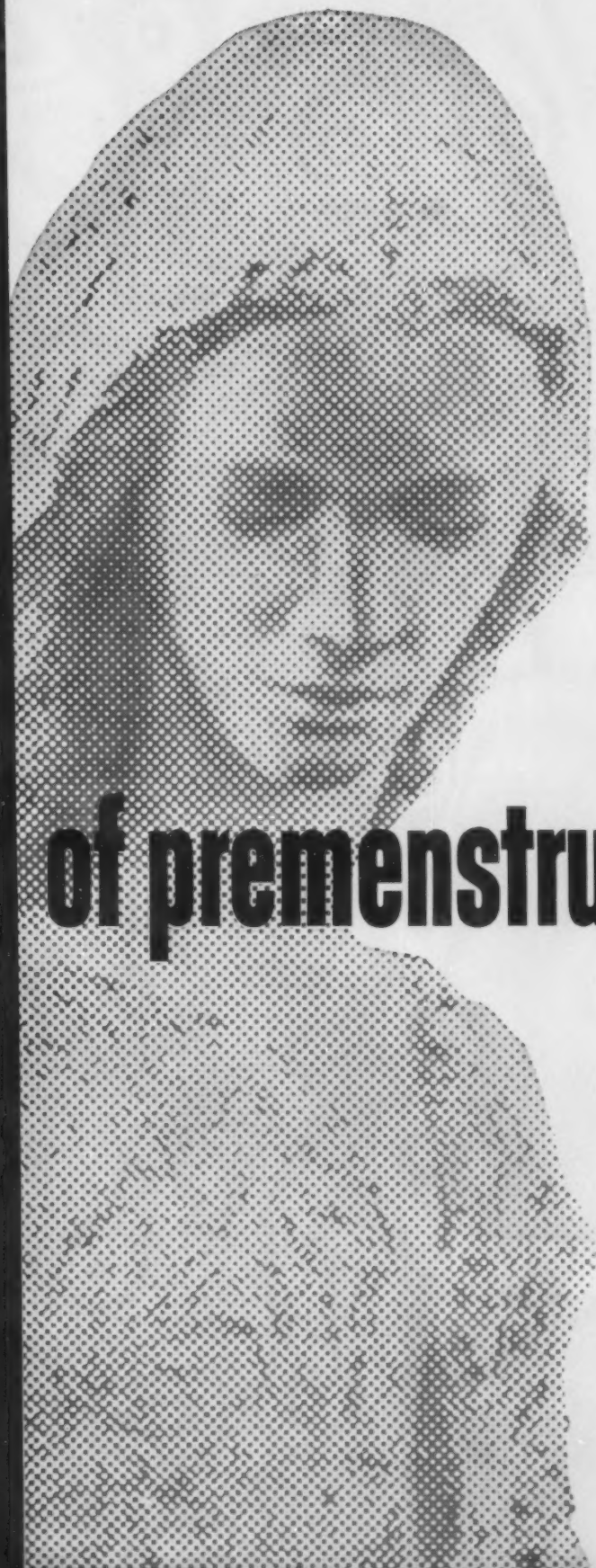
for rapid reduction of
weight gain, breast fullness,
abdominal congestion

for MOOD-CHANGES...

CYCLEX supplies the effective
relief of meprobamate for nerv-
ousness, irritability, tension,
nausea, malaise, insomnia

for GI DISTRESS...

CYCLEX affords quick-acting
relief of nausea and
bloating associated with
premenstrual tension.



INDICATION: CYCLEX is indicated for the relief of premenstrual tension with edema.

USUAL DOSAGE:

One CYCLEX Tablet 1 or 2 times daily, beginning when symptoms appear and continuing until the onset of menses.

of premenstrual tension

SUPPLIED: CYCLEX Tablets are supplied in bottles of 100. Each tablet contains 25 mg. of hydrochlorothiazide and 200 mg. of meprobamate.

Additional information on CYCLEX is available to physicians on request.

CYCLEX and HYDRODIURIL are trademarks of Merck & Co., INC.



MERCK SHARP & DOHME
Division of Merck & Co., INC.
West Point, Pa.



this is
PLEXONAL

(ACTUAL SIZE AND SHAPE)

*Optimum results are obtained by gradually increasing the dosage to the maximum the patient can tolerate without the appearance of drowsiness. The following procedure for dosage adjustment has proven highly successful:

Take one tablet 2 times per day for 2 days. On the third day increase the daily dosage by one tablet. Similarly increase the dose every third day thereafter, to the point of drowsiness.

For example, if one tablet 4 times a day produces an obvious sleepy feeling, and on three the patient is comfortable, then the proper dose will be three tablets per day.

a superior daytime relaxing agent

(NOT A TRANQUILIZER)

PLEXONAL[®]

Comparative clinical studies show that PLEXONAL is superior to meprobamate or barbiturates for daytime relaxation^{1,2}

"Plexonal was preferred (superior therapeutic effect) by 73.7 per cent of the patients, whereas 11.1 per cent preferred meprobamate, a ratio of 6.6 to 1... 30.5 per cent noted adverse reactions to meprobamate as compared to 7 per cent in respect to Plexonal. . . Plexonal gave better results than did any of the sedative or relaxing agents that have been available during our experience covering the previous 15 years."¹

As a daytime relaxant, "it is well suited especially for the treatment of hyperexcitability and anxiety."²

Indications: Anxiety, tension, apprehension, nervousness, irritability, restlessness, hyperexcitability.

Extremely well tolerated by geriatric patients who need mild sedation, as well as by depressed patients.

Dosage: One tablet 3 or 4 times a day is adequate for most patients. However, some require up to six tablets per day, whereas others respond adequately to as little as 1 tablet per day.

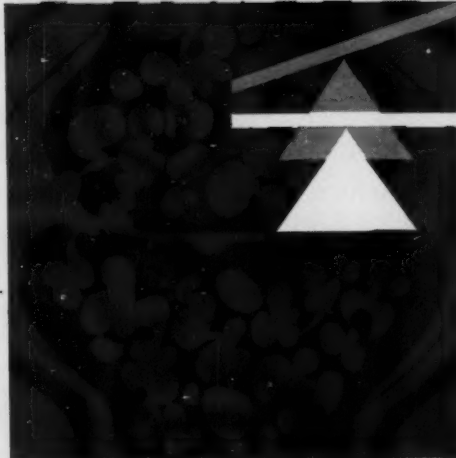
Composition: Each tablet contains sodium diethylbarbiturate 45 mg., sodium phenylethylbarbiturate 15 mg., sodium isobutylallylbarbiturate 25 mg., scopolamine hydrobromide 0.08 mg., dihydroergotamine methanesulfonate 0.16 mg.

1. Scheifley, C. H.: Proc. Staff Meet. Mayo Clin. 34:408 (Aug. 19) 1959.
2. Kadish, A. H.: Clin. Med. 2:379 (March) 1955.

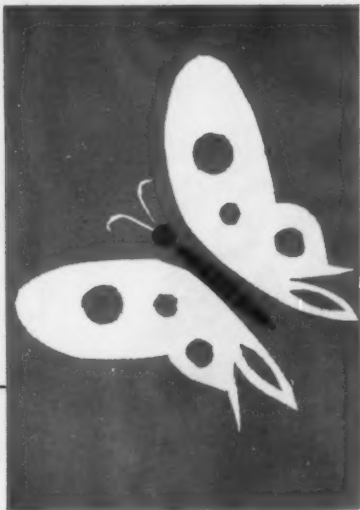


**whenever aspirin
proves inadequate**

brand of prednisone-phenylbutazone



Geigy



AFTER HOURS

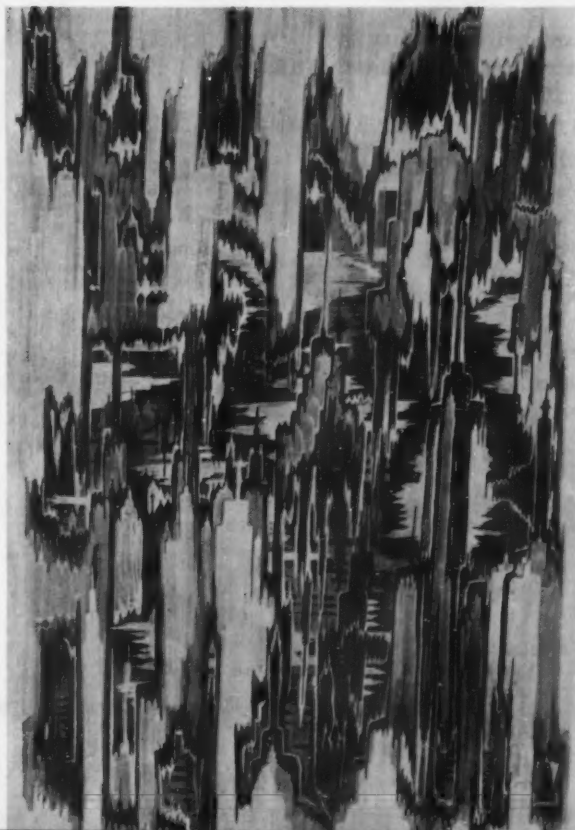
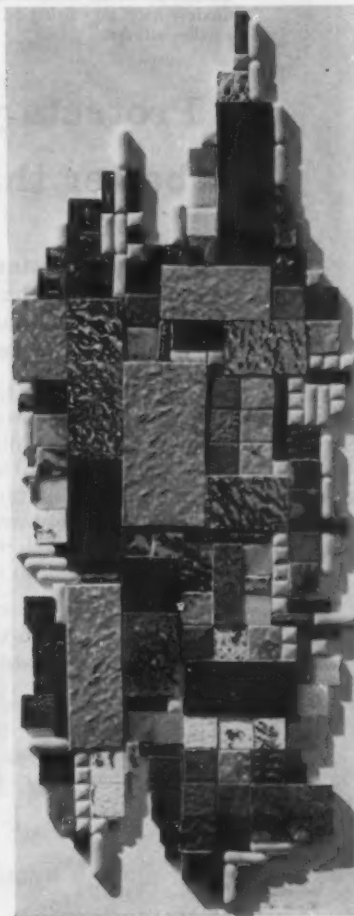
I like to consider myself as being in the general practice of medicine, and the general practice of Art.

I have been doing ceramics and mosaics for two years, painting and sculpture for one year, and have won awards in these classes in local and national exhibits, including the American Physicians Art Association's exhibit in Miami Beach, in June 1960.

It is a wonderful pastime, has opened many new vistas, and I hope it will someday become a second vocation.

WILFRED LANSMAN, M.D.

Miami Beach, Fla.





IN ANGINA PECTORIS AND CORONARY INSUFFICIENCY

... the treatment must go further than vasodilation alone. It should also control the patient's ever-present anxiety about his condition, since anxiety itself may bring on further attacks.



AFTER MYOCARDIAL INFARCTION

... it is frequently not enough to boost blood flow through arterial offshoots and establish new circulation. The disabling fear and anxiety that invariably accompany the condition must be reduced, or the patient may become a chronic invalid.

Protects your coronary patient better than vasodilation alone

Unless the coronary patient's ever-present anxiety about his condition can be controlled, it can easily induce an anginal attack or, in cases of myocardial infarction, considerably delay recovery.

This is why Miltrate gives better protection for the heart than vasodilation alone in coronary insufficiency, angina pectoris and postmyocardial infarction. Miltrate contains not only PETN (pentaerythritol tetranitrate), acknowledged as basic therapy for long-acting vasodilation. What is more important — Miltrate provides Miltown, a tranquilizer of *proven* effectiveness in relieving anxieties, fear and day-to-day tension in over 600 clinical studies.

Thus, your patient's cardiac reserve is protected against his fear and concern about his condition...and his operative arteries are dilated to enhance myocardial blood supply.

Supplied: Bottles of 50 tablets. Each tablet contains 200 mg. Miltown and 10 mg. pentaerythritol tetranitrate.

Dosage: 1 or 2 tablets q.i.d. before meals and at bedtime, according to individual requirements.

REFERENCES

1. Ellis, L. B. *et al.*: *Circulation* 17:945, May 1958. 2. Friedlander, H. S.: *Am. J. Cardiol.* 1:395, Mar. 1958. 3. Rheman, J.E.F.: *New England J. Med.* 261:1017, Nov. 12, 1959. 4. Russek, H. I. *et al.*: *Circulation* 12:169, Aug. 1955. 5. Russek, H. I.: *Am. J. Cardiol.* 3:547, April 1959. 6. Tortora, A. R.: *Delaware M. J.* 30:298, Oct. 1958. 7. Waldman, S. and Peiner, L.: *Am. Pract. & Digest Treat.* 8:1075, July 1957.

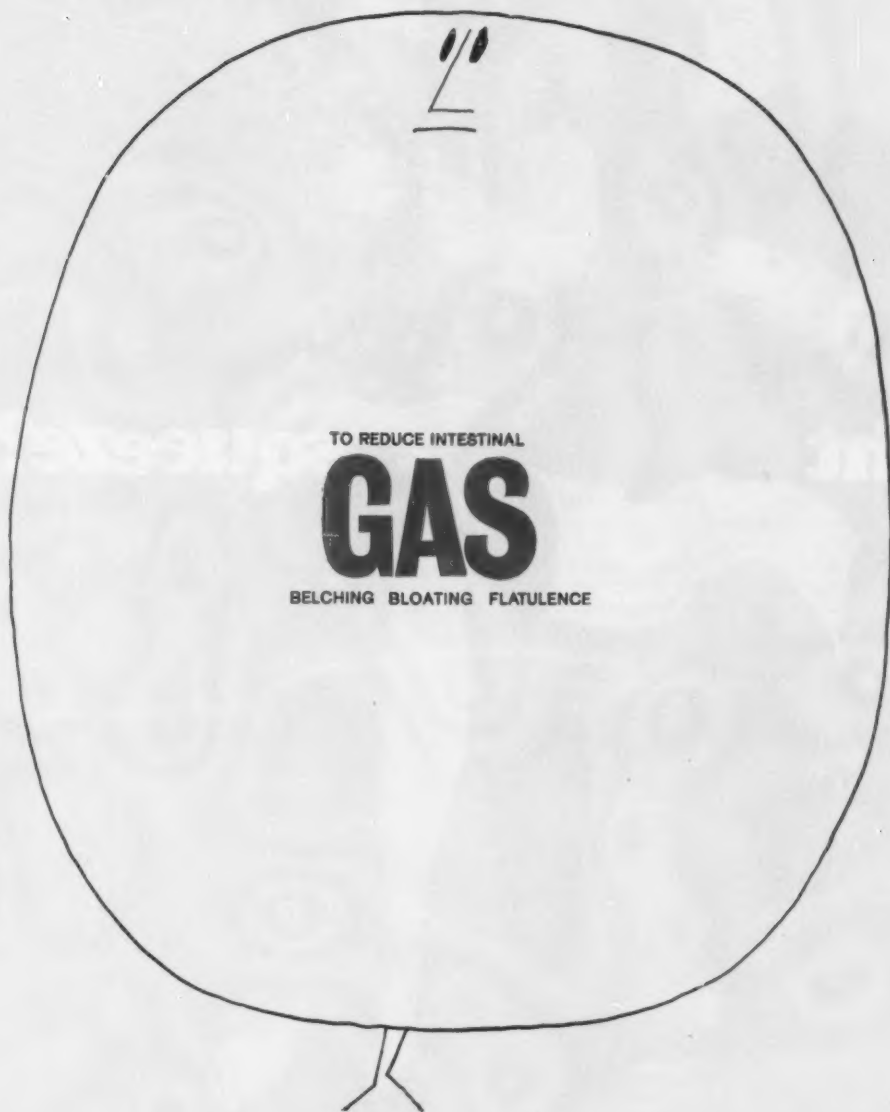
Miltrate®

Miltown® (meprobamate) + PETN



WALLACE LABORATORIES / Cranbury, N. J.

CML-1288



TO REDUCE INTESTINAL

GAS

BELCHING BLOATING FLATULENCE

A biochemical compound used to diminish intestinal gas in healthy persons and those patients having digestive disorders ■

KANULASE

Each Kanulase tablet contains Dorase,[®] 320 units, combined with pepsin, N.F., 150 mg.; glutamic acid HCl, 200 mg.; pancreatin, N.F., 500mg.; oxbile extract, 100 mg. Dosage: 1 or 2 tablets at meal-time. Supplied: Bottles of 50 tablets.

DOORSEY BRAND OF CELLULOSE, EXPRESSED AS DIGESTIVE ACTIVITY UNITS.

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska.



tight

squeeze?

NEEDED: THE APPETITE SUPPRESSANT STRONG ENOUGH AND SAFE ENOUGH TO DO THE JOB

Ambar controls many cases of overeating/obesity refractory to usual therapy. To strengthen the will for successful dieting, the methamphetamine-phenobarbital in Ambar is designed to improve mood without harmful CNS overstimulation. Available in different forms to enable individualization of dosage: **AMBAR #1 EXTENTABS**,

10-12 hour extended action tablets, methamphetamine HCl 10.0 mg., phenobarbital 64.8 mg. **AMBAR #2 EXTENTABS**, methamphetamine HCl 15.0 mg., phenobarbital 64.8 mg. Also conventional **AMBAR TABLETS**, methamphetamine 3.33 mg., phenobarbital 21.6 mg.

A. H. ROBINS CO., INC., RICHMOND 20, VA.



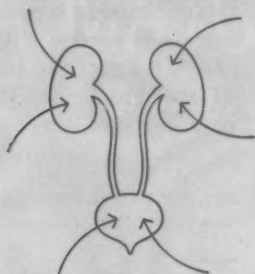
AmbarTM #1 Extentabs[®] / AmbarTM #2 Extentabs[®]

*for prompt
control
of urinary tract
infections*

Urobiotic®

Cosa-Terramycin®—sulfonamide—analgesic

Capsules



*Science
for the world's
well-being™*



PFIZER LABORATORIES
Division, Chas. Pfizer & Co., Inc.
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IN BRIEF

Urobiotic Capsules provide control of urinary infections through effective Terramycin and sulfamethizole concentrations in the blood and urine, plus the prompt analgesic effect of phenylazo-diamino-pyridine upon the inflamed mucosa. Each Urobiotic Capsule contains 125 mg. Cosa-Terramycin (oxytetracycline with glucosamine), 250 mg. sulfamethizole, and 50 mg. phenylazo-diamino-pyridine HCl.

INDICATIONS: Urobiotic is indicated in the treatment of a number of common genitourinary infections caused by susceptible organisms. It may also be used prophylactically before and after genitourinary or pelvic surgery, following instrumentation procedures, during the use of retention catheters, and in patients with conditions such as cord bladder or cystocele.

DOSAGE: In adults, a dose of 1 or 2 capsules four times daily is suggested, depending upon the severity and response of the infection. In children under 100 lbs., the suggested average dose is 1 capsule four times daily; in children under 60 lbs., 1 capsule three times daily. Therapy should be continued for a minimum of 7 days or until bacteriologic cure.

CONTRAINDICATIONS: Urobiotic may be contraindicated in patients with chronic glomerulonephritis, hepatitis, hepatic failure, uremia, and obstructive lesions of the urinary tract, and should not be used in patients sensitive to any of its components.

PRECAUTIONS: The use of broad-spectrum antibiotics may in rare cases result in an overgrowth of nonsusceptible organisms, such as monilia or staphylococci. Should such superinfection occur, therapy with Urobiotic should be discontinued and specific therapy instituted as shown by susceptibility testing. The usual precautions for sulfonamide therapy should be followed when using Urobiotic.

SUPPLY: Urobiotic capsules, yellow and grey with "Pfizer" imprint, bottles of 50.

Detailed professional information is available on request from Pfizer Laboratories Medical Department.

FOR **P**ROVEN **M**ENOPAUSAL **B**ENEFITS with extra relief from anxiety and tension

The vast majority of menopausal women, *especially on the first visit*, are nervous, apprehensive, and tense. PMB-200 or PMB-400 gives your patient the advantage of *extra* relief from anxiety and tension, particularly when the patient is "high strung," under prolonged emotional stress, or when psychogenic manifestations are acute. Proven menopausal benefits are confirmed by the wide clinical acceptance of

"Premarin," specifically for the relief of hot flushes and other symptoms of estrogen deficiency, together with the well established tranquilizing efficacy of meprobamate.

Two potencies to meet the needs of your patients:

PMB 200

"PREMARIN® WITH MEPROBAMATE"

PMB-200—Each tablet contains conjugated estrogens equine ("Premarin") 0.4 mg., and 200 mg. of meprobamate. When greater tranquilization is necessary you can prescribe PMB-400—Each tablet contains conjugated estrogens equine ("Premarin") 0.4 mg., and 400 mg. of meprobamate. Both potencies are available in bottles of 60 and 500.

AYERST LABORATORIES
New York 16, N.Y., Montreal, Canada



MEPROBAMATE, LICENSED UNDER U. S. PAT. NO. 2,754,720. 5917



Predictable performance
with skillful guidance

A MATCHLESS COMBINATION

THE SAME *Sharp* EDGE
THE SAME *Safe* PACKAGE



It's Sharp

B-P Sterile Blades . . . always assuring
cutting efficiency at its best . . . NOW
packaged in a choice of steel to meet your
requirements.

The quality is a TRADITION

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The CHOICE of steel is yours

Check YOUR preference of

BARD-PARKER STERILE BLADES

in the puncture-resistant
easily opened package



CARBON

SHARP at equal hardness—carbon holds its cutting edge longer.

RIGID the 'RIB'—exclusive with the B-P RIB-BACK carbon steel blade gives extra rigidity. Rolling a 'rib' on stainless is difficult and too costly.

SAFE danger of breakage during surgery is minimized—carbon has a greater degree of toughness without embrittlement.



STAINLESS

CORROSION RESISTANT will not corrode when subjected to a reasonable period of thermal sterilization.

ECONOMICAL resterilization of exposed but unused blades eliminates 'discards'—saves costs.

TIME-SAVING may be attached to handles for emergency use in put-ups involving cardiac arrest, tracheotomy, paracentesis, or wherever pre-assembly is necessary.

BARD-PARKER BLADES are available:

Sterile

B-P RIB-BACK carbon steel (individual package)

B-P stainless steel (individual package)

Non-Sterile

B-P RIB-BACK carbon steel (6 of one size per package)

B-P RACK-PACK RIB-BACK carbon steel (gross and half gross units of one size)

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BARD-PARKER COMPANY, INC.
DANBURY, CONNECTICUT

A DIVISION OF BECTON, DICKINSON AND COMPANY

Rapid and prolonged response in allergic reactions...



• to drugs



• to soaps and detergents



• to cosmetics



• to pollen

The majority of your allergic patients achieve a rapid and prolonged response to 'Teldrin' *Spansule* capsule therapy. Five minutes after ingestion one-third of the medication is released for absorption. The remaining two-thirds is released over the next eight to ten hours to provide antihistaminic protection the rest of the day or night.

Teldrin® Spansule®

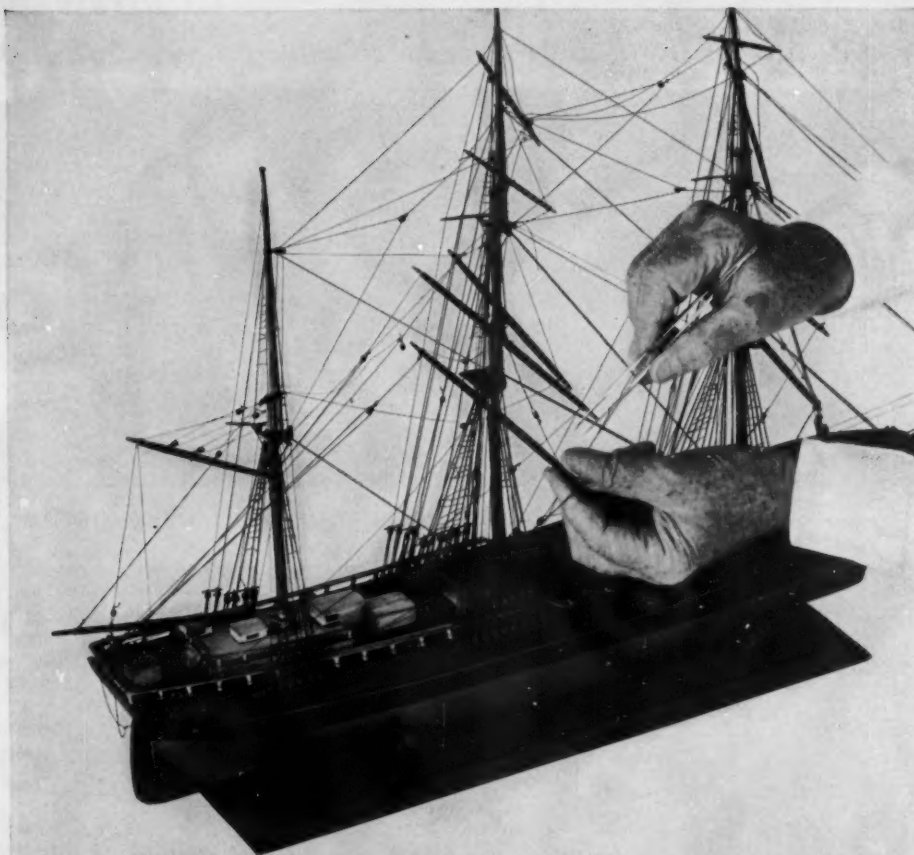
brand of chlorprophen-
pyridamine maleate

brand of sustained
release capsules

"... THE WORK HORSE OF THE [ANTIHISTAMINE] GROUP ... EFFECTIVE ... WELL
TOLERATED ... ESPECIALLY CONVENIENT FOR THE BUSY PATIENT."

Rogers, H.L.: *Postgrad. Med.* 26:85 (July) 1939.

Smith Kline & French Laboratories, Philadelphia



"the most effective drug against tremor..."¹

IN PARKINSONISM Parsidol exceeds all other drugs for reducing tremor,¹ a major impairment in this disease. Parsidol also lessens rigidity, brightens the patient's mood and contributes to restoration of self-confidence. Especially well tolerated by older patients,^{1,2,3} Parsidol is effective alone, and most patients respond well to a maintenance dosage of 50 mg. q.i.d. Parsidol is compatible with other antiparkinsonian drugs and can be given in combination if so desired.

PARSIDOL®

brand of ethopropazine hydrochloride

PARKINSONISM



1. Schwab, R. S. and England, A. C.: *J. Chron. Dis.* 8:488 (Oct.) 1958.

2. Schwab, R. S.: *Geriatrics* 14:545 (Sept.) 1959.

3. Doshay, L. J. et al.: *J.A.M.A.* 160:348 (Feb. 4) 1956.

PAR-GP04



Who Is This Doctor?

Identify the famous physician from clues in this brief biography

Born at Taganrog, Russia, in 1860, a son of simple, half-educated, religious people, he was given a liberal education. In 1879 he graduated from Gymnasium in Taganrog and matriculated as a student of the Medical Faculty of the Moscow University. He obtained his medical degree in 1884. While studying, he began to write short stories for comic papers. In 1886, a series of his stories was collected in a book which had an immediate success. This was soon followed by another volume. Many of his later stories included doctors as the acting personages. Having gained popularity, he was able to write exclusively for the largest daily paper in Moscow and became financially independent.

On taking his degree he did not settle down to practice as a doctor but continued his literary career. His short stories, which made his name world famous, marked a new era in Russian literature.

In 1890, he traveled through Siberia and made a thorough investigation of convict life. The results were published in the book "Sakhalin Island" (1891). This book is supposed to have influenced certain reforms in prison life which were introduced in 1892. During the cholera epidemic of 1892-93 he worked as the head of a sanitary district.

In 1895 he wrote "The Seagull" which had a great success as a stage play under the direction of Stanislavsky. He produced several other plays, among them "Uncle Vanya," "The Three Sisters" and, best known in this country, "The Cherry Orchard."

In 1901 he married a leading actress of the Art Theatre, Olga L. Knipper, who performed many major roles in his plays. The last years of his life were spent in Yalta where he had built himself a villa.

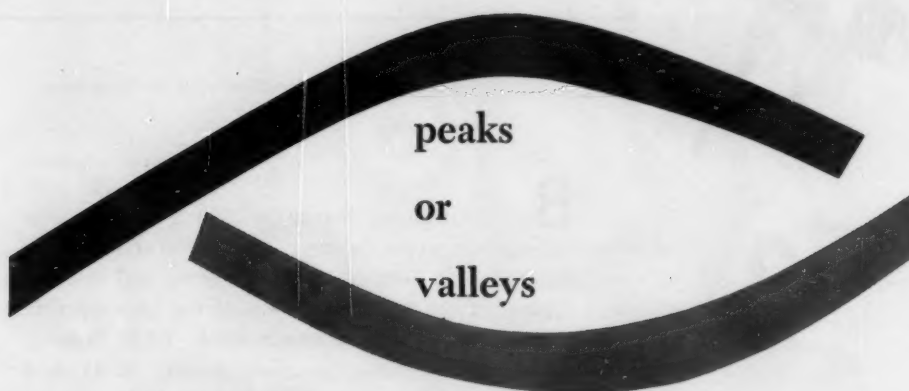
He suffered from tuberculosis, was sent to a German health resort in the Black Forest and died there in June 1904. His body was returned to Moscow for interment.

His literary works had a great influence upon many modern authors, among them Bernard Shaw and Ernest Hemingway.

Can you name this doctor? *Answer on page 232a.*

no more

therapeutic



peaks

or

valleys

DIGITALINE

the original crystalline digitoxin

NATIVELE®

You will find that Digitaline Nativele, the original crystalline digitoxin, provides exactly the balanced, controlled maintenance dose you want for your cardiac patient. Its duration of activity is neither too short nor unduly prolonged, well suited to daily maintenance therapy. Its complete absorption and purity assure uniform potency, precision of dosage, total utilization and effectiveness. A product of Nativele, Inc.

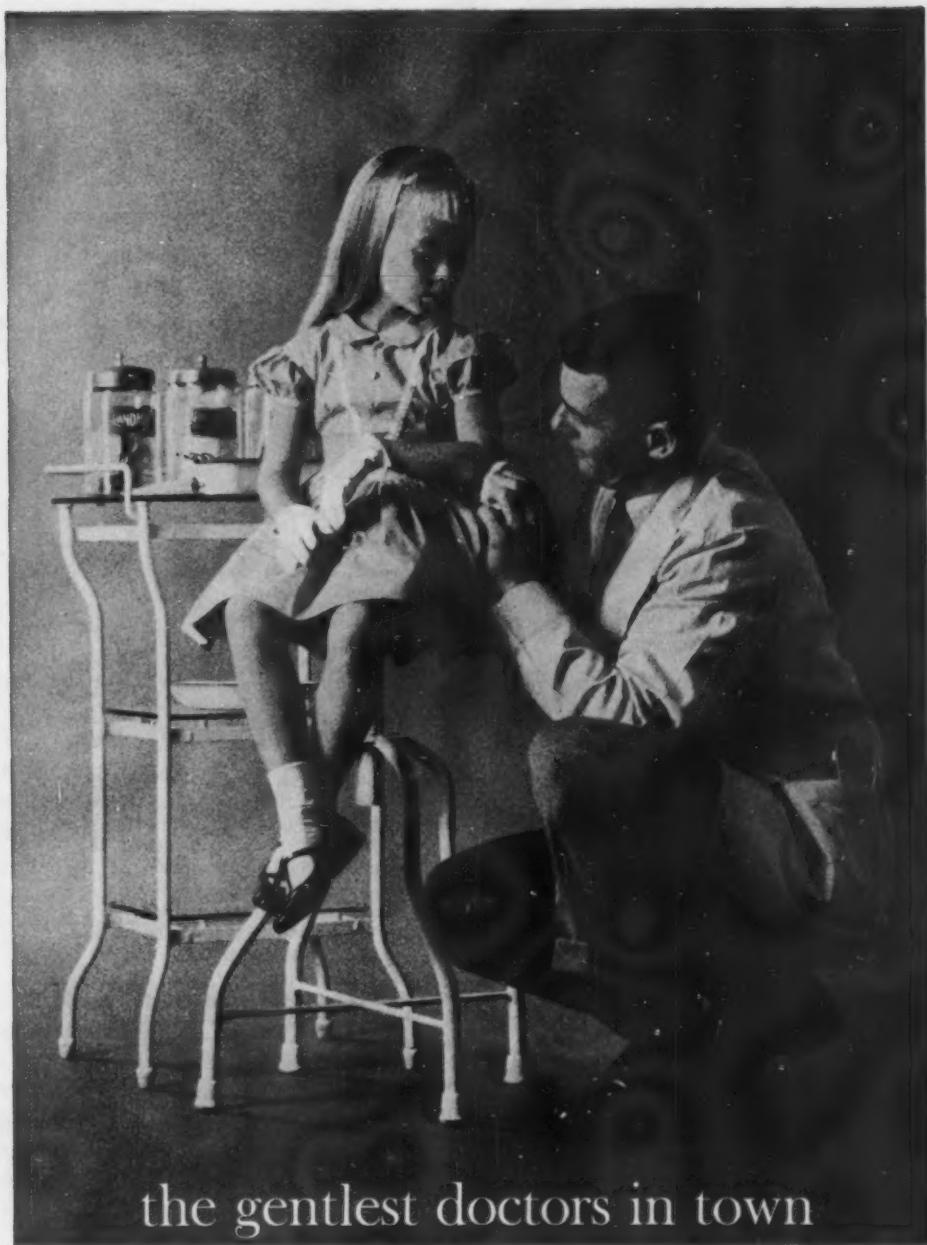
FOUGERA

E. Fougera & Company, Inc., Hicksville, Long Island, N. Y.

after initial digitalization...

a lifetime of balanced

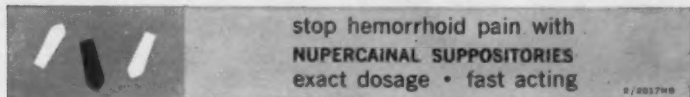
controlled maintenance therapy



the gentlest doctors in town
stop pain with **Nupercainal**
(dibucaine CIBA)

... For minor cuts and burns, sunburn, hemorrhoids, removing sutures, performing routine office surgery, making instrument examinations. And, to best suit every situation, there's a choice of Ointment, Cream, Lotion, Suppositories. Complete information available on request.

CIBA
SUMMIT, N. J.



stop hemorrhoid pain with
NUPERCAINAL SUPPOSITORIES
exact dosage • fast acting

9/201798

DIAPHRAGMS!

NINE REASONS WHY MORE AND MORE PHYSICIANS
ARE USING THE CONTOURING

Koro-Flex



1. Reduces your fitting instruction time.
2. Patient ease of insertion—automatic placement.
3. Develops patients' confidence. Easy to use.
4. Folds behind pubic bone with suction-like action, forming an effective barrier.
5. Seals off cervical area.
6. Locks in spermicidal lubricant—delivers it directly under and next to the os uteri.
7. Keeps its place—doesn't shift.
8. Simple to remove.
9. Aesthetically acceptable. Is most comfortable. KORO-FLEX (contouring) Diaphragms may be used where ordinary coil-spring diaphragms are indicated and for Flat rim (Mensinga)-type as well.

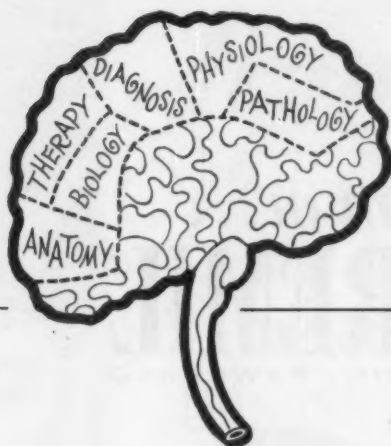
Recommend: KORO-FLEX Compact, the ONLY compact that provides the arcing diaphragm (60-95 mm), jelly and Koromex cream (trial size). *More satisfied patients result from trying both and then selecting the one best suited to physiological requirements.* Eliminates guessing. Supplied in feminine clutch-style bag with zipper closure.

Available in all prescription pharmacies.
Write for descriptive literature.
Always insist on the use of time-tested Koromex Jelly or Cream with diaphragm.



HOLLAND-RANTOS CO., INC.
145 HUDSON STREET • NEW YORK 13, N. Y.

Manufacturers of Koromex Products



Mediquiz

These questions were prepared especially for Medical Times by the Professional Examination Service, a division of the American Public Health Association. Answers will be found on page 232a.

1. The condition known as Perthes' disease is a:

- A) Fracture of the femur complicated by incurable synovial hypertrophy.
- B) Disease of infants associated with a posterior dislocation of the hips.
- C) Lesion occurring in young adults and is characterized by a slipping of the femoral epiphysis.
- D) Congenital anomaly of the hips associated with Robert's pelvis.
- E) Form of aseptic necrosis of the femoral head seen in children.

2. Causalgia is a term applied to a condition that is characterized by:

- A) A fear of incorrect diagnosis.
- B) Persistent burning pain in an extremity following injury, sometimes of a trivial nature.
- C) Marked osteoporosis of the bones of an extremity.
- D) Formation of a whorl-like nerve tumor.
- E) A compensation neurosis.

3. Uretero-arachnoid anastomosis is an operation devised for the treatment of:

- A) Polycystic kidney.
- B) Communicating hydrocephalus.
- C) Ureteropelvic obstruction.
- D) Extrophy of the bladder.
- E) Intracranial hemorrhage due to birth trauma.

4. When adequate replacement therapy is given in Addison's disease, the change that is *least* likely to occur is:

- A) Gain in weight.
- B) Decrease in heart size.
- C) Ankle edema.
- D) Rise in blood pressure.
- E) Initial falling hematocrit.

5. The principal mode of therapy for patients with hypoparathyroidism is:

- A) Calcium, orally or intravenously.
- B) Low calcium and phosphorus diet.
- C) Vitamin D.
- D) Amphogel.
- E) Excision of most of the parathyroids.

6. The treatment of choice in auricular flutter with heart failure is:

- A) Eyeball pressure.
- B) Carotid sinus pressure.
- C) Digitalis by mouth.
- D) Quinidine by mouth.
- E) Cortisone.

7. Compression of nerve roots by a spinal cord tumor causes:

- A) Pain aggravated by sneezing.
- B) No muscle atrophy.
- C) No severe pain at any time.
- D) Pain always made worse by walking.
- E) No pain.

Concluded on page 84a



m m m...
BREMIL®
 LIQUID / POWDERED

matches mother's milk

in total infant nutrition with a physiologically balanced, complete formula — for a clinically smoother course of formula feeding

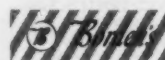
easier on everyone concerned — because BREMIL-fed babies are less subject to commonly occurring problems such as digestive upset, diaper rash, perianal dermatitis, and hyperirritability (only *liquid* formula food with a guaranteed standardized physiologic Ca:P ratio of 1½:1)

efficient, well utilized protein, patterned on mother's milk, encourages excellent growth but helps avoid excessive renal solute load, thus guarding against stress-induced dehydration

Standard Dilution:

Liquid — 1:1 with water.
 13-fl.oz. tins.

Powdered — 1 level measure
 to 2 fl.oz. hot water.
 1-lb. tins.



PHARMACEUTICAL DIVISION
 350 Madison Avenue New York 17, N. Y.

Trancopal
brand of chlormezanone

effective oral skeletal
muscle relaxant
and tranquilizer

LETS THE PATIENT WALK
"HEADS UP"
in spite of torticollis.





Trancopal relieves pain and spasm associated with torticollis.

In a recent study by Ganz, Trancopal brought considerable improvement or very effective relief to 20 of 29 patients with torticollis.¹ "The patients helped by the drug," states Ganz, "were able to carry the head in the normal position without pain." Similarly, Kearney found that in 8 of 13 patients with chronic torticollis treated with Trancopal improvement was excellent to good. "... Trancopal is the most effective oral skeletal muscle relaxant and mild tranquilizer currently available."²

Lichtman, in a study of patients with various musculoskeletal conditions, noted that 64 of 70 patients with torticollis obtained excellent to good relief with Trancopal.³

In a comparative study of four central nervous system relaxants, Lichtman reports that 26 of 40 patients found Trancopal to be the most effective drug.³

Clinical results with *Trancopal*²

	Excellent	Good	Fair	Poor	Total
LOW BACK SYNDROMES					
Acute low back strain	25	19	8	6	58
Chronic low back strain	11	5	1	1	18
"Porters' syndrome" [*]	21	5	1	1	28
Pelvic fractures	2	1	—	—	3
NECK SYNDROMES					
Whiplash injuries	12	6	2	1	21
Torticollis, chronic	6	2	3	2	13
OTHER MUSCLE SPASM					
Spasm related to trauma	15	6	1	—	22
Rheumatoid arthritis	—	18	2	1	21
Bursitis	2	6	1	—	9
TENSION STATES	18	2	4	3	27
TOTALS	112 (51%)	70 (32%)	23 (10%)	15 (7%)	220 (100%)

^{*}Over-reaching in lifting heavy bags resulting in sprain of upper, middle, and lower back muscles.

Dosage: Adults, 200 or 100 mg. orally three or four times daily.

Relief of symptoms occurs in from fifteen to thirty minutes and lasts from four to six hours.

How Supplied: Trancopal Caplets[®]

200 mg. (green colored, scored), bottles of 100.

100 mg. (peach colored, scored), bottles of 100.

Winthrop LABORATORIES, New York 18, N. Y.

Mediquiz

Concluded from page 81a

8. Which of the following is the best description of Menière's syndrome?

A) Tinnitus, nausea, and vomiting due to any middle ear disease usually of pyogenic origin.

B) Vertigo, tinnitus, papilledema, and convulsions due to cerebral arteriosclerosis.

C) Unilateral deafness due to brain stem tumors, associated with symptoms of nausea, vomiting, and malaise.

D) Paroxysmal vertigo, tinnitus, headache, and unilateral progressive deafness of unknown etiology.

E) Tinnitus, vomiting, unconsciousness, and bilateral otosclerotic changes of unknown etiology.

9. Hypotension with a small quiet heart is frequently found in:

A) Diabetes mellitus.

B) Myxedema heart disease.

C) Cushing's disease.

D) Thyrotoxicosis.

E) Addison's disease.

10. Uncinate fits are a type of:

A) Petit mal seizures.

B) Olfactory hallucinations.

C) Grand mal seizures.

D) Psychomotor equivalents.

E) Auditory hallucinations.

11. The drug treatment of choice for car-

adult
stable
diabetics

•
sulfonylurea
failures
respond to

DBI

trademark,
brand of Phenformin HCl

adult stable diabetes

"In our experience the action of DBI on the adult stable type of diabetes is impressive... **88% were well controlled by DBI.**"¹

"Most mild diabetic patients were well controlled on a biguanide compound [DBI], and such control was occasionally superior to that of insulin. This was true regardless of age, duration of diabetes, or response to tolbutamide."²

"DBI has been able to replace insulin or other hypoglycemic agents with desirable regulation of the diabetes when it is used in conjunction with diet in the management of adult and otherwise stable diabetes."³

sulfonylurea failures

Among those diabetics who responded to tolbutamide initially and became secondary failures DBI "**gave a satisfactory response in 55%.**"⁴

"DBI is capable of restoring control in a considerable portion of patients in whom sulfonylurea compounds have failed, either primarily or secondarily."⁵

"All twelve secondary tolbutamide failures have done well on DBI."⁶

"**34 out of 59 sulfonylurea primary failures were successfully treated with DBI.**"⁷



diac failure in hyperthyroidism is:

- A) Quinidine.
- B) Iodine.
- C) Phenobarbital.
- D) Digitalis.
- E) Cedilarid.

12. The pathognomonic triad of chronic fibrous adhesive pericarditis consists of:

- A) A small quiet heart, a high venous pressure and an enlarged liver with ascites.
- B) A precordial friction rub, pulmonary tuberculosis and edema of the legs.
- C) Marked dyspnea and orthopnea, auricular fibrillation and a diastolic rumble at the apex.
- D) A large area of retromanubrial dullness, right pleural effusion and acute glomerulonephritis.
- E) A to-and-fro murmur at the apex, cardiac enlargement and elevation of the sedimentation rate.

13. Prior to the advent of antibiotic therapy the percent of patients attacked by subacute bacterial endocarditis who recovered from the infection was:

- 1) 1.
- B) 10.
- C) 30.
- D) 50.
- E) 75.

(Answers on page 232a)

VOLUME 2 MEDIQUIZ READY

A second volume of 150 Mediquiz questions, answers and references compiled by the Professional Examination Service, Division of the American Public Health Association is now available in booklet form for \$1 per copy. The supply of booklets is limited. To be certain you get your copy, send your dollar now to: Professional Examination Service, Department 23-B, American Public Health Association, 1790 Broadway, New York 19, N. Y. Specify "Volume 2." (A few copies of Volume 1 are available at \$1 each for those who missed out on this valuable review aid.)



DBI

lowers
blood sugar
in mild,
moderate
and severe
diabetes,
in
children
and
adults

not a sulfonylurea... DBI

(N¹-β-phenethylbiguanide) is available as white, scored tablets of 25 mg. each, bottles of 100.

Send for brochure with complete dosage instructions for each class of diabetes, and other pertinent information.

1. Walker, R. S.: Brit. M. J. 2:405, 1959.
2. Odell, W. D., et al.: A.M.A. Arch. Int. Med. 102:520, 1958.
3. Pearlman, W.: Phenformin Symposium, Houston, Feb. 1959.
4. DeLawter, D. E., et al.: J.A.M.A. 171:1786 (Nov. 28) 1959.
5. McKendry, J. B., et al.: Canad. M. A. J. 80:773, 1959.
6. Miller, E. C.: Phenformin Symposium, Houston, Feb. 1959.
7. Krall, L. P.: Applied Therapeutics 2:137, 1960.

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Arlington-Funk Laboratories, division
250 East 43rd Street, New York 17, N. Y.

6



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products to remember!

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EAR DROPS

IN ACUTE OTITIS MEDIA
SAFE AURALGESIC
AND DECONGESTANT

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BACTERICIDAL — FUNGICIDAL

BROAD-SPECTRUM
THERAPY IN
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BIO-TOSMOSAN® HC

(WITH HYDROCORTISONE ALC.)

IN ACUTE EXACERBATION
EXTERNAL OTITIS
ALLERGIC EARS

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NASAL SPRAY

SAFE!
"NOT JUST ANOTHER
DECONGESTANT"

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(WITH HYDROCORTISONE ALC.)

ANTI-INFLAMMATORY
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THROAT SPRAY — GARGLE — SWAB

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AND NON-INFECTIOUS —
THROAT INVOLVEMENTS

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DECLOMYCIN[®]

DEMETHYLCHLORTETRACYCLINE LEDERLE



*attains
sustains
retains*

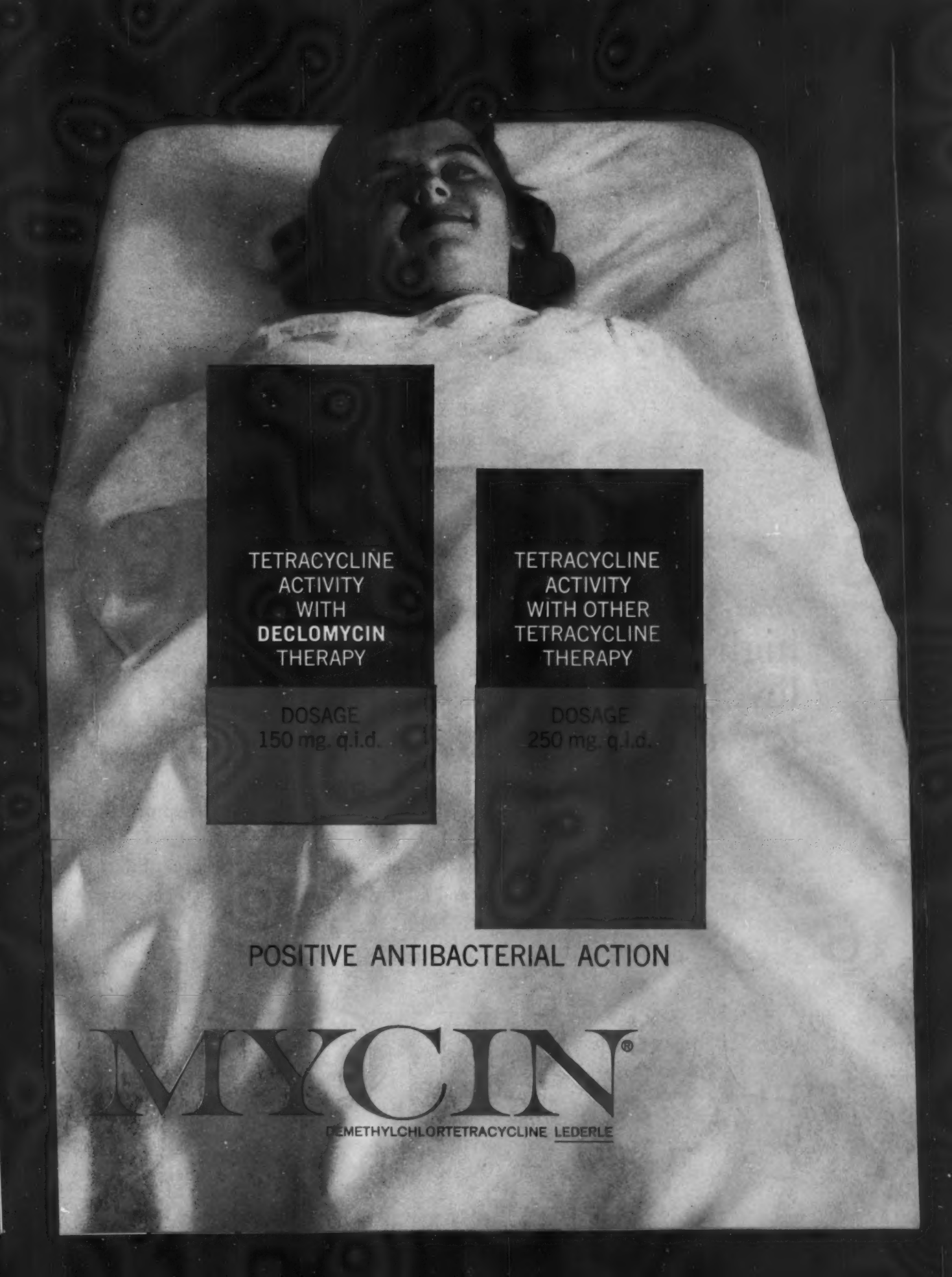
*extra
antibiotic
activity*

attains
high activity
levels at
low dosage

DECLOMYCIN Demethylchlortetracycline attains—usually within two hours—inhibitory blood levels more than adequate to suppress susceptible pathogens. The substantially higher levels—higher, that is, in comparison with other tetracyclines—insure that positive antibacterial action is brought to bear at the infective site. On a milligram-for-milligram basis, DECLOMYCIN Demethylchlortetracycline has been shown to have two to four times the inhibitory capacity of other tetracyclines against susceptible organisms and has, in addition, been shown to inhibit many individual strains relatively resistant to other tetracyclines.

DECLOMYCIN Demethylchlortetracycline normally attains optimal inhibitory concentrations in affected tissues and body fluids on daily dosages substantially lower than those required to elicit antibiotic activity of comparable intensity with other tetracyclines. With other tetracyclines, the average, effective, adult daily dose is 1 Gm. With DECLOMYCIN Demethylchlortetracycline, it is only 600 mg.

DECLO



TETRACYCLINE
ACTIVITY
WITH
DECLOMYCIN
THERAPY

DOSAGE
150 mg. q.i.d.

TETRACYCLINE
ACTIVITY
WITH OTHER
TETRACYCLINE
THERAPY

DOSAGE
250 mg. q.i.d.

POSITIVE ANTIBACTERIAL ACTION

MYCIN[®]

DEMETHYLCHLORTETRACYCLINE LEDERLE

sustains
high activity
levels at
low dosage

DECLOMYCIN sustains, through the entire therapeutic course, the high activity levels needed to control the primary infective process and to check the onset of a complicating secondary infection at the original—or at another—site. The antibiotic suffuses through organs, tissues and fluids, and is present at therapeutic concentrations in other potentially or actually affected systems while it is acting at the primary site.

DECLOMYCIN sustains this combined therapeutic action, in most instances, without pronounced hour-to-hour, dose-to-dose, peak-and-valley fluctuation in activity levels. This flattening-out of the activity-level oscillations which characterize other tetracyclines is attributable to two distinctive properties of DECLOMYCIN Demethylchlortetracycline — relatively high resistance to degradation within the body and a relatively low rate of renal clearance.

DECLO



DECLOMYCIN—SUSTAINED ACTIVITY LEVELS

OTHER TETRACYCLINES—PEAKS AND VALLEYS

PROTECTION AGAINST PROBLEM PATHOGENS

MYCIN[®]

DEMETHYLCHLORTETRACYCLINE LEDERLE

retains
high activity
levels after
dosage is
stopped

DECLOMYCIN Demethylchlortetracycline retains significant tetracycline activity levels, in the majority of cases, up to 48 hours after the last dose is given. This attribute is, again, due to higher resistance to degradation and a lower renal clearance rate...as compared with other tetracyclines. A full, extra day of positive antibacterial action may, thus, be confidently expected. Two extra days in which measurable therapeutic levels are retained have been reported in many cases.

DECLOMYCIN, thus, provides up to six days, activity on a four-day therapeutic course. Shortening of the normally indicated course is not recommended, since this may deprive the patient of the benefit of the added insurance against superinfection or recurrence provided by the longer retention of antibacterial potency. One capsule four times a day, for the average infection in the average adult, is the same as with other tetracyclines — but the *total* dosage is lower and the duration of anti-infective action is longer.

DECLO

DAYS 1 2 3 4 5 6

DAYS OF TETRACYCLINE A¹ DOSAGE

DURATION OF PROTECTION

DAYS OF TETRACYCLINE B² DOSAGE

DURATION OF PROTECTION

DAYS OF TETRACYCLINE C³ DOSAGE

DURATION OF PROTECTION

DAYS OF **DECLOMYCIN** DOSAGE

DURATION OF PROTECTION

(1) Oxytetracycline. (2) Chlortetracycline. (3) Tetracycline.

PROTECTION AGAINST RECURRENCE

MYCIN[®]

DEMETHYLCHLORTETRACYCLINE LEDERLE

- higher activity/intake ratio—positive antibacterial action
- sustained activity levels—protection against problem pathogens
- up to two extra days' activity—protection against recurrence

CAPSULES, 150 mg., bottles of 16 and 100. **Dosage:** Average infections — 1 capsule four times daily. Severe infections—Initial dose of 2 capsules, then 1 capsule every six hours.

PEDIATRIC DROPS, 60 mg./cc. in 10 cc. bottle with calibrated, plastic dropper. **Dosage:** 1 to 2 drops (3 to 6 mg.) per pound body weight per day—divided into 4 doses.

SYRUP, 75 mg./5 cc. teaspoonful (cherry-flavored), bottles of 2 and 16 fl. oz. **Dosage:** 3 to 6 mg. per pound body weight per day—divided into 4 doses.

PRECAUTIONS: As with other antibiotics, DECLOMYCIN may occasionally give rise to glossitis, stomatitis, proctitis, nausea, diarrhea, vaginitis or dermatitis. A photodynamic reaction to sunlight has been observed in a few patients on DECLOMYCIN. Although reversible by discontinuing therapy, patients should avoid exposure to intense sunlight. If adverse reaction or idiosyncrasy occurs, discontinue medication.

Overgrowth of nonsusceptible organisms is a possibility with DECLOMYCIN, as with other antibiotics. The patient should be kept under observation.

for the
added measure
of protection
in clinical
practice

DECLOMYCIN[®]

DEMETHYLCHLORTETRACYCLINE LEDERLE

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York



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**STERILE
DISPOSABLE
NEEDLES**

**for the benefits
of disposability...**

PLUS NEW

EASY-ENTRY POINTS

smooth, drag-free penetration

SAFER-HANDLING HUBS

surer finger grasp

TAMPER-PROOF PACKAGES

assured one-time use

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in the package—after filling—
to the moment of injection

now in sizes to meet most parenteral needs
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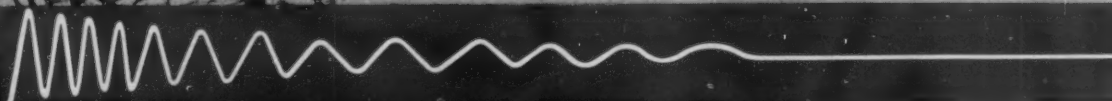
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NEW from Searle

PROBITAL ^{T.M.}

BRAND OF PROPANTHELINE BROMIDE WITH PHENOBARBITAL



*smooth,
calm
relief*

...in smooth-muscle spasm

RATIONAL NEW ANTISPASMODIC FORMULATION:

propantheline bromide (7.5 mg.) and phenobarbital (15 mg.)
the standard for control of the standard for augmenting
gastrointestinal spasm antispasmodic action
compression-coated tablets

Probital provides rational, convenient therapy in
smooth-muscle spasm: spasm of the pylorus, small
and large intestines and the sphincter of Oddi, as well
as gastritis, biliary dyskinesia and diverticulitis.

G. D. SEARLE & CO. *Research in the Service of Medicine*

SEARLE



MODERN MEDICINALS

These brief résumés of essential information on the newer medicinals, which are not yet listed in the various reference books, can be pasted on file cards. This file can be kept by the physician for ready reference.

Adabee-M, A. H. Robins Co., Inc., Richmond, Virginia. Green capsule-shaped tablets containing the Adabee formula plus nine important minerals. Indicated as a dietary supplement in the treatment of numerous vitamin deficiency states. *Dose*: 1 or 2 tablets daily as directed. *Sup*: Bottles of 100, 500.

Antrenyl, Ciba Pharmaceutical Products, Inc., Summit, New Jersey. New injectable strength, each ml. containing 1 mg. oxyphenonium bromide. Indicated to relieve pain, spasm and acidity in peptic ulcer and other g.i. disorders. Also used as a pre-anesthetic drying agent in patients sensitive to atropine. *Dose*: As directed by physician. *Sup*: Boxes of five 10-ml. multi-dose vials.

Brevital Sodium, Eli Lilly & Company, Indianapolis, Indiana. Methohexital sodium; new injectable barbiturate anesthetic of greater potency and ultrashort duration of action to meet the needs of anesthesiologists, oral surgeons, and psychiatrists for an agent permitting more rapid recovery of patients without anesthetic hangover. *Dose*: Should be administered only by persons experienced in anesthesiology. Dosage must be adjusted to each patient. The drug's high potency and ultrashort action call for a specific technic of administration. As a guide, the induction dose of a 1 percent solution may be administered at the rate of 1 cc. (10 mg.) in five seconds. The dose usually ranges between 5

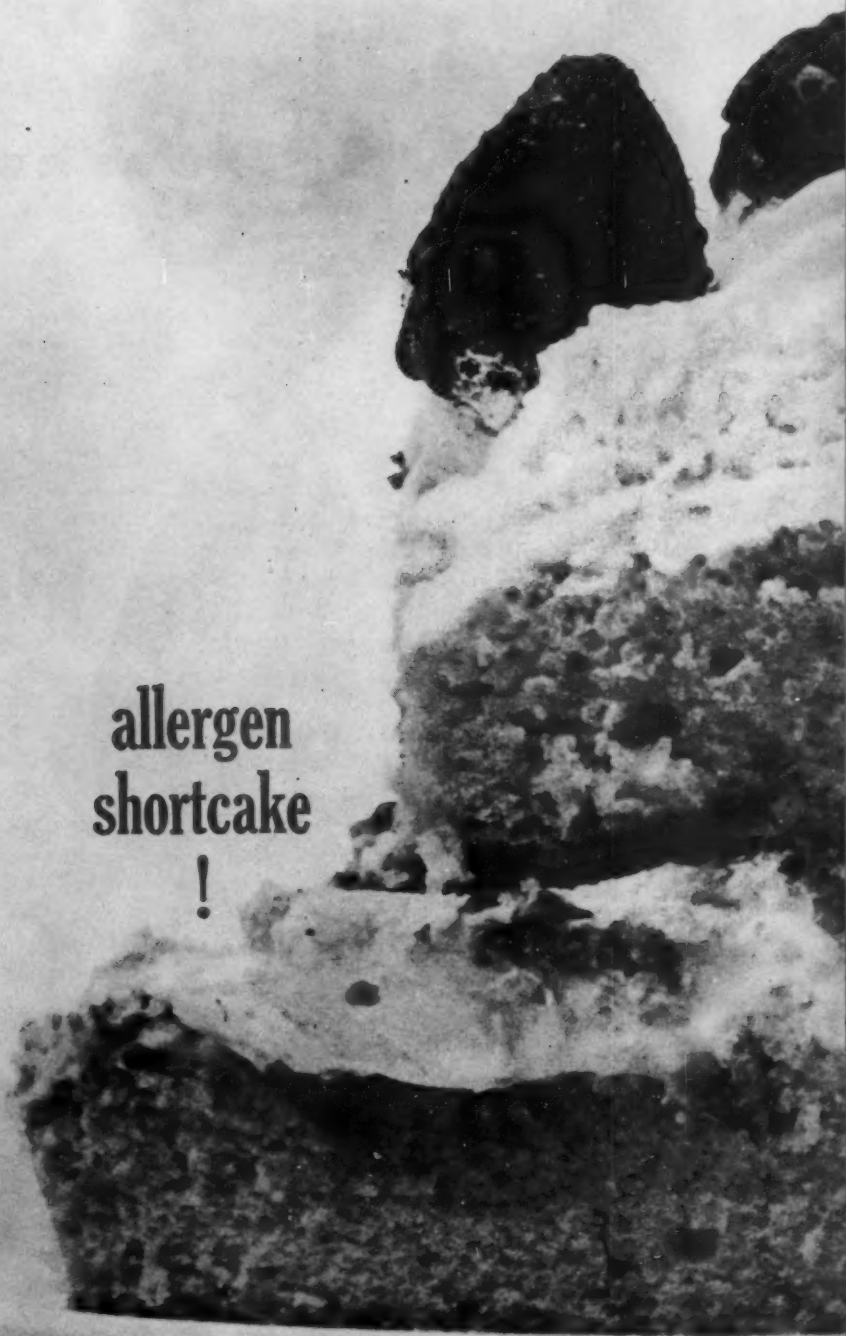
to 12 cc. Intermittent injection for maintenance must be individualized, but, as a guide, 2 to 4 cc. every four to seven minutes may be used. *Sup*: Crystalline form in packages of 1 and 25 ampoules of 500 mg. or 2.5 Gm.

Bronkotab Elixir, George A. Breon Company, New York, New York. Cherry-flavored liquid, containing in each 5 cc. teaspoonful 50 mg. glyceryl guaiacolate, 12 mg. ephedrine sulfate, 15 mg. theophylline, 4 mg. phenobarbital, and 1 mg. chlorpheniramine maleate. Indicated for symptomatic control of bronchial asthma, also for relief of bronchial asthma as a result of upper respiratory allergies. *Dose*: Adults, 2 teaspoonfuls every three or four hours, not to exceed four times daily. Children, one-half of adult dose. *Sup*: Bottles of 1 pt.

Bubartal TT, The Columbus Pharmacal Co., Columbus, Ohio. Time-controlled tablets, each containing 60 mg. butabarbital sodium. Indicated as a mild sedative or hypnotic in anxiety and tension states, essential hypertension, peptic ulcer, premenstrual tension and the menopause, coronary artery disease, congestive heart failure, hyperthyroidism and insomnia. *Dose*: For daytime sedation, 1 tablet on arising. For bedtime hypnotic, 2 tablets one hour before retiring. *Sup*: Bottles of 100 and 500.

Continued on page 100a

**allergen
shortcake
!**





when sensitive patients
sample forbidden fruit...

BENADRYL®

antihistaminic-antispasmodic

gives prompt, comprehensive relief

In food sensitivity, BENADRYL provides simultaneous dual control of allergic symptoms. Gastrointestinal spasm, and the cutaneous and respiratory symptoms associated with food allergy, are favorably affected by the *antihistaminic action* of BENADRYL. Concurrently, its *antispasmodic effect* alleviates colicky pain, nausea, and vomiting. This duality of action makes BENADRYL valuable in many allergic disorders.

BENADRYL Hydrochloride (diphenhydramine hydrochloride, Parke-Davis) is available in a variety of forms including: Kapseals,® 50 mg. each; Kapseals, 50 mg., with ephedrine sulfate, 25 mg.; Capsules, 25 mg. each; Elixir, 10 mg. per 4 cc.; and for delayed action, Emplets,® 50 mg. each. For parenteral therapy, BENADRYL Hydrochloride Steri-Vials,® 10 mg. per cc.; and Ampoules, 50 mg. per cc.

27400

PARKE-DAVIS

PARKE, DAVIS & COMPANY • DETROIT 32, MICHIGAN

Declostatin, Lederle Laboratories Division, American Cyanamid Company, Pearl River, New York. Capsules, each containing 150 mg. Declomycin demethylchlorotetracycline and 250,000 units nystatin. Indicated for the treatment of tetracycline-sensitive infections whenever intestinal overgrowth of monilia is a potential hazard. *Dose*: Average adult dosage is 1 capsule four times a day or 2 capsules twice a day. *Sup*: Bottles of 16 and 100.

Duo-C.V.P. with Vitamin K, U. S. Vitamin & Pharm. Corp., New York, New York. Capsules, each providing 200 mg. water-soluble citrus bioflavonoid compound with 200 mg. ascorbic acid and 1.32 mg. menadione (vitamin K). Indicated for prevention and control of bleeding due to increased capillary fragility and/or decreased prothrombin blood vessels. *Dose*: 2 or 3 capsules in divided doses daily, or more as needed. One capsule t.i.d. for 5 to 10 days prior to surgery and continuing through convalescence. *Sup*: Bottles of 50.

Hypaque Sodium Oral, Winthrop Laboratories, New York, New York. New dosage form available in powder (for preparing radioopaque solutions) and liquid. Indicated for roentgen visualization of the gastrointestinal tract. Taken by mouth or administered as an enema it provides excellent opacification and delineation; is miscible with intestinal contents and with blood, thus permitting study in the presence of hemorrhage; produces virtually no side effect and is particularly valuable when barium sulfate is unsuitable or potentially harmful. *Dose*: As directed by physician. *Sup*: Powder in cans of 250 Gm. with measuring spoon (approximately 10 Gm. capacity). Liquid in bottles of 120 cc. (containing 50 Gm. of Hypaque sodium).

Inpersol, Abbott Laboratories, North Chicago, Illinois. Solutions and equipment for intermittent peritoneal dialysis. Each 100 ml. of solution contains 500 mg. sodium lactate, anhydrous; 560 mg. sodium chloride U.S.P.; 26 mg. calcium chloride U.S.P.; 15 mg. magnesium chloride, hexahydrate; and 1.5 Gm. or 7 Gm. dextrose U.S.P., in water for injection. Indicated in acute renal failure, barbiturate or other systemic poisoning with dialyzable agents, intractable edema, hepatic coma, hypercalcemia, azotemia and chronic uremia. *Dose*: Surgical procedure, as directed on package insert. *Sup*: 1000 ml. Abbot-Liter bottles of 7% or 1.5% dextrose solution, packed in 6's; disposable administration set packed in 8's.

Lucanthone Hydrochloride, Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, New York. Scored tablets each containing 200 mg. Lucanthone Hydrochloride (synthetic, non-metallic thioxanthone derivative). Indicated for oral administration in the treatment of schistosomiasis; produces rapid improvement in cases of *S. mansoni* and *S. hematobium* infections; less effective in cases due to *S. japonicum*. *Dose*: Recommended dosage is 15 mg./Kg./day divided into three doses—for 7 consecutive days. *Sup*: Bottles of 30.

Prelu-Vite, Geigy Pharmaceuticals, Ardsley, New York. Blue and yellow capsules, each containing 25 mg. phenmetrazine HCl plus a therapeutic combination of vitamins and minerals. Indicated where the administration of vitamins and minerals is desired in combination with an appetite-suppressant for the control of obesity. *Dose*: Usual adult dose, 1 capsule 2 or 3 times daily one hour before meals. *Sup*: Bottles of 100.

Concluded on page 106a

IMPROVING ON NATURE Plywood is just one of the many examples of how man has modified one of nature's gifts to make it more useful.

In the treatment of hypothyroidism, Proloid offers similar evidence of man's ingenuity in improving on nature.

Proloid is doubly standardized: chemically, like ordinary thyroid, and biologically, by an exclusive Warner-Chilcott assay. This assay assures unvarying metabolic potency and a safe, predictable clinical response in every case. Yet this important extra care makes Proloid cost little more than ordinary thyroid.

Specify Proloid whenever thyroid is indicated. Three grains is the average daily dose for patients with mild forms of hypothyroidism.

safe, dependable, economical

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UNITED STATES PLYWOOD CORPORATION 8703



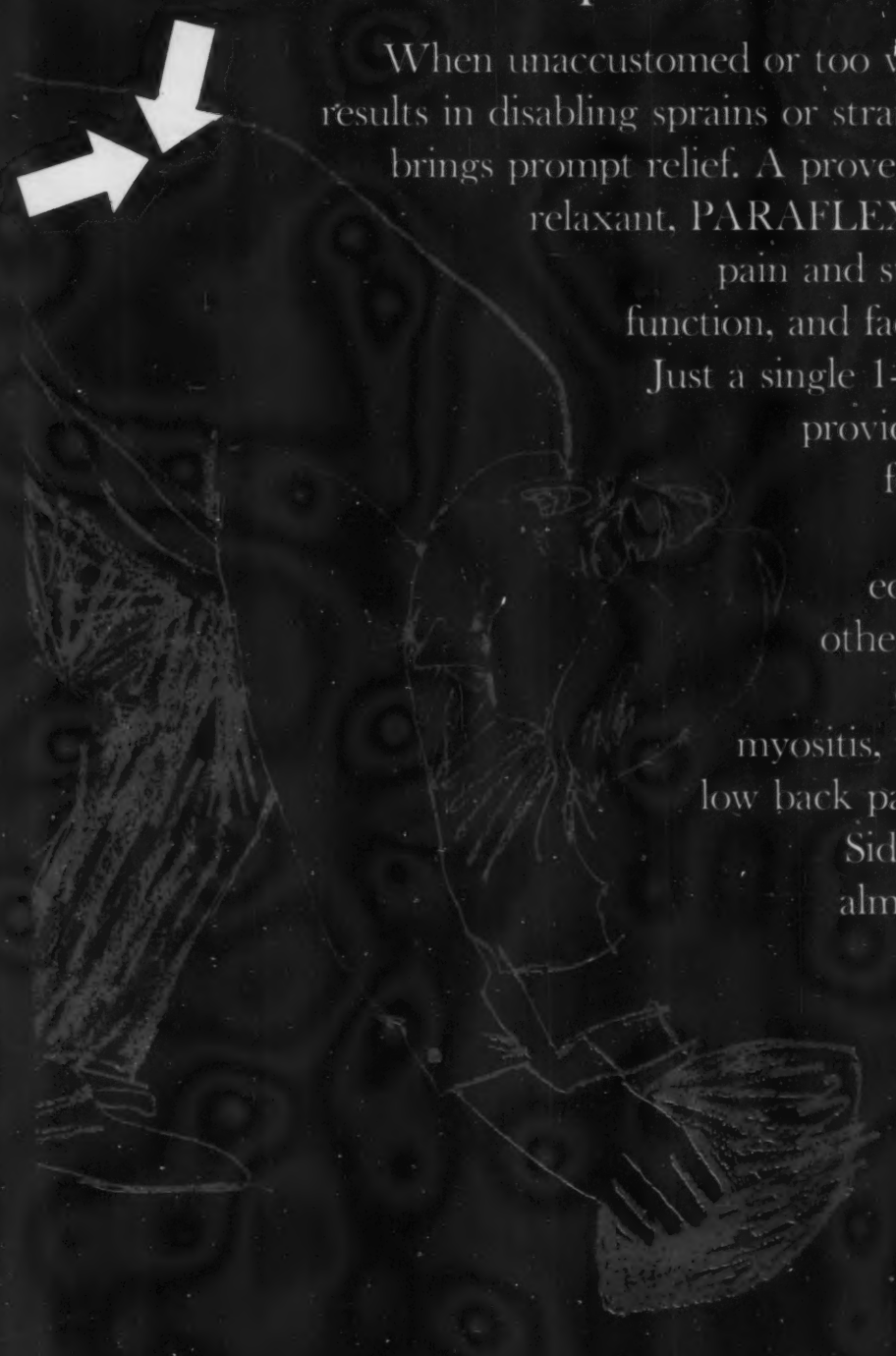
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PARAFLEX[®]

Chlorzoxazone[®]

for relief of painful muscle spasm



When unaccustomed or too vigorous exertion results in disabling sprains or strains, PARAFLEX brings prompt relief. A proven skeletal muscle relaxant, PARAFLEX rapidly relieves pain and stiffness, improves function, and facilitates recovery.

Just a single 1- or 2-tablet dose provides these benefits for up to 6 hours.

PARAFLEX is equally effective in other musculoskeletal disorders, such as myositis, whiplash injuries, low back pain, and fibrositis.

Side effects are rare, almost never require discontinuance of therapy.

Dosage: 1 to 2 tablets i.d. or q.i.d.

Supplied: Scored, orange tablets, bottles of 50. Each tablet contains PARAFLEX Chlorzoxazone, 250 mg.

U.S. Patent No. 2,895,877

McNEIL

McNEIL LABORATORIES, INC.
PHILADELPHIA 32, PA.

don't let medical control out of your hands during the critical newborn period

When you specify Vi-Sol drops you specify vitamins designed to help keep you in full control of the infant's medical care. Always professionally oriented, Vi-Sol drops are not only manufactured to meet your highest standards, but they are promoted only to you. You select the level of protection...Mother feels confident in your choice.

Exceptional stability of vitamin C is only one of the many advantages of Vi-Sol drops. This outstanding stability is attained in part through the nitrogen bubble bath, which eliminates vitamin contact with destructive atmospheric oxygen. Other controls to stabilize vitamin C are maintained right through to the final packaging—in amber bottles for protection against deteriorating light rays.

VI-SOL[®] DROPS outstanding vitamin C stability

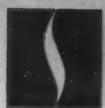
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Drops
3 basic vitamins

POLY-VI-SOL[®]
Drops
6 essential vitamins

DECA-VI-SOL[®]
Drops
10 significant vitamins



your professional control assures baby's good health
...mother's confidence



Mead Johnson
Symbol of service in medicine

Permitil Chronotabs, White Laboratories, Inc., Kenilworth, New Jersey. Chronotabs containing 1 mg. fluphenazine dihydrochloride, half of which is in the outer coating for immediate absorption and half in the barrier-protected inner core for sustained action. Indicated to provide relief from ordinary anxiety and tension without impairing alertness for 14 to 16 hours. *Dose*: one tablet daily. *Sup*: Bottles of 50.

Polymagma Tablets, Wyeth Laboratories, Philadelphia, Pennsylvania. New convenient tablet form containing 25,000 units polymyxin B sulfate, 75 mg. dihydrostreptomycin base (as sulfate), 350 mg. activated attapulgit, 45 mg. pectin, and 70 mg. hydrated alumina powder. Indicated for the control of bacterial diarrhea. *Dose*: Adults, 2 tablets initially, then 2 after each loose bowel movement. For children and infants, suggest use of Polymagma Suspension. *Sup*: Bottles of 48.

Purivax, Merck Sharp & Dohme, Division of Merck & Co., Inc., Philadelphia, Pennsylvania. Purified poliomyelitis vaccine, for polio immunity. *Dose*: Three 0.5 cc doses are recommended, with an interval of one month between the first and second doses, and seven months between the second and third. *Sup*: Vials of 2 cc.

Salutensin, Bristol Laboratories, Syracuse, New York. Scored tablets, each containing 50 mg. hydroflumethiazide, 0.125 mg. reserpine, 0.20 mg. protoveratrine. Indicated for treatment of high blood pressure. *Dose*: As directed by physician. *Sup*: Bottles of 60.

Somacort, Wallace Laboratories, Cranbury, New Jersey. White, scored tablets, each containing 350 mg. carisoprodol and 2 mg. prednisolone. Indicated for acute and chronic arthritis, acute and chronic musculoskeletal

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Conclusions: "Because of the excellent results obtained in 78 cases of peptic ulcer ... I strongly recommend its use as a most valuable adjunct in the treatment of this disease."*

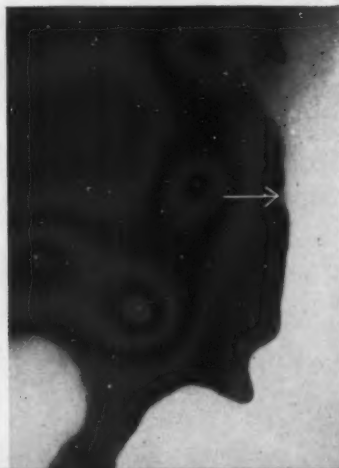
*Mozan, A. A.: *Postgraduate Med.* 26:542, 1959

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REFERENCES: 1. N. MULLA AND J. J. McDONOUGH, *ANN. NEW YORK ACAD. SC.*, 82 (ART. 1), 182, 1959.
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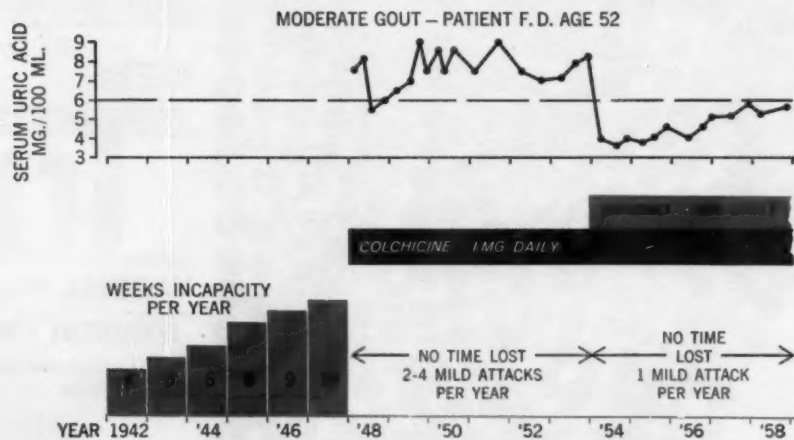
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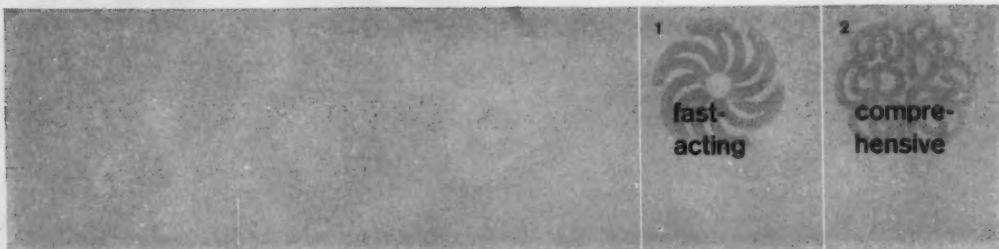
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THE PERFORATED PEPTIC ULCER

JOHN R. PAINE, M.D.
Buffalo, New York



The striking decrease in mortality associated with the surgical treatment of abdominal lesions has been a source of great gratification to both the medical profession and the lay public. There is, however, some reason to doubt whether this decrease in mortality has also occurred in the management of the perforated peptic ulcer. In Table I, representative series of cases showing the "overall" case fatality rates occurring in the management of these lesions in both the stomach and duodenum are presented. It is surprising to note the relatively large number of deaths which continue to occur among such patients. During the past twenty years, there would appear to have been no consistent general improvement. This would seem to be amply borne out by the figures in Table II which have caused us considerable concern. Most articles on the subject report only "operative" mortalities, the death rate associated with some particular type of treatment or that occurring in a certain selected type of patient. It is comforting, apparently, to the writers of such articles to exclude from consideration those patients deemed to be too ill for operation or those in whom the diagnosis was either missed initially or only made at autopsy. At the Buffalo General Hospital during the past seventeen years, ten percent of the patients with perforated peptic ulcers were just such cases.

Deaths occurred in thirty-six patients over a seventeen-year period. In nine instances, accounting for one-quarter of the deaths, the diagnosis was not made prior to autopsy. Inasmuch as the autopsy percentage at the Buffalo General Hospital is just over fifty percent, the importance of the missed diagnosis as an important contributing factor to the high mortality

TABLE I OVERALL MORTALITY IN REPORTED SERIES OF PATIENTS WITH PERFORATED PEPTIC ULCERS

	YEAR OF REPORT	TOTAL NUMBER OF PATIENTS	PERCENT MORTALITY
Yudin	1939	1,372	16.1%
DeBakey	1940	7,981	22.0%
Stabins	1953	249	16.4%
Donhauser	1954	146	21.9%
Quast	1955	340	14.7%
Martinis	1957	437	22.6%
Barrow	1958	98	21.4%
Paine	1959	202	17.8%

TABLE II OVERALL MORTALITY IN PATIENTS WITH PERFORATED PEPTIC ULCERS BUFFALO GENERAL HOSPITAL, '42-'58

	PATIENTS	DEATHS	MORTALITY
1942-46	66	11	16.6%
1947-51	48	9	18.7%
1952-56	65	11	16.9%
1957-58	23	5	21.7%
TOTAL	202	36	17.8%

TABLE III DEATHS IN PATIENTS WITH PERFORATED PEPTIC ULCERS, BUFFALO GENERAL HOSPITAL, '42-'58

Total Patients	202
Total Deaths (17.8%)	36
Diagnosis Missed	9
Moribund on Admission	6
Refused Surgery	1
Operative Deaths	20
Immediate	9
P.O. Complications	11

may be even greater than it might otherwise seem to be. The general practitioner, the internist and the surgeon must all share in the responsibility for those patients with missed or delayed diagnosis. In five of the nine instances noted above, the patient was never seen by a surgeon. Of course there is no easy method or formula by which this situation can be changed. It is obviously true that all patients with acute abdominal symptoms need not and should not be operated upon, but it is well to remind both internist and surgeon alike, of the heavy responsibility which they must assume when those patients in whom a definitive diagnosis cannot be made are treated in a conservative manner without an abdominal operation.

As one reads the current medical literature, it is apparent that there is no general agreement as to just what is the method of choice for the management of the patient with an acute perforation of a peptic ulcer. Such a patient, depending upon where he was at the time of such a catastrophe, might have one of three things done to him:

1. Simple closure of the perforation by suture.
2. Subtotal resection of the stomach.
3. Continuous aspiration of the stomach through an indwelling gastroduodenal tube.

In many clinics, one single method of management is followed almost routinely; while in others, certain criteria for the selection of patients with respect to the mode of management are gradually becoming established. No general acceptance of any such criteria, however, has occurred.

Management by Suture Closure

The treatment of the acutely perforated peptic ulcer by immediate operation and closure of the perforation by sutures has been considered for many years in America as the orthodox method of management and remains today

From the Buffalo General Hospital and University of Buffalo School of Medicine.

as the most frequently employed. The standardization of the technic of this operation by Roscoe Graham in the thirties and his report of one hundred and thirty consecutive cases of duodenal ulcer, so treated with only a 6.4% mortality, in 1946, had a great deal of influence in assuring its popularity. The results obtained by others using this procedure, although usually not as good as Graham's, have been fairly consistent as is indicated in Table IV.

Some improvement in the results following this type of management may have occurred but certainly nothing startling. An operative mortality of ten to twelve percent at the present time is not a figure that even the most complacent surgeon should in good conscience accept as satisfactory. Furthermore, it has become increasingly evident that the late results of survivors in whom acute perforations have been sutured successfully are not all that might be desired. Figures quoted in the medical literature are remarkably similar. Simple closure of the perforation by suture will be followed in about seventy percent of the survivors by further difficulty with recurrent ulceration, and definitive surgery will be required for forty to fifty percent of the survivors.

Another objection which can be raised against the routine treatment of the perforated ulcer by simple suture is the relatively high incidence of serious postoperative complications. In most reported series, this varies from twenty to twenty-five percent. At the Buffalo General Hospital, for the period 1942 through 1958, one hundred and seventy-nine patients were operated upon and fifty-four complications occurred in forty-nine of these patients. Complications were the direct cause of death in eleven patients accounting, therefore, for about thirty percent of the total mortality and about fifty percent of the operative mortality.

Infection in its varying forms involving the peritoneal cavity or the lungs comprises the most serious postoperative complication, although complications of the operative wound itself are the most numerous. How this situa-

TABLE IV OPERATIVE MORTALITY IN PATIENTS WITH PERFORATED PEPTIC ULCER TREATED BY SUTURE CLOSURE

	YEAR OF REPORT	TOTAL NUMBER OF PATIENTS	PERCENT MORTALITY
Cohn	1941	300	15.5%
Raw	1944	212	14.4%
Stabins	1953	237	12.7%
Donhauser	1954	115	11.3%
Hoyer	1957	1,364	10.0%
Desmond	1958	208	9.4%
Paine	1959	179	11.1%

tion can be improved remains unsolved. Antibiotic drugs apparently are not the answer. In instances where gross contamination of the peritoneal cavity has occurred from extruded gastric or duodenal contents, mechanical removal by copious careful lavage is essential. There is suggestive evidence to support the contention that many pulmonary postoperative complications in patients with perforated ulcers may well be the sequelae of the perforation itself rather than the operation for closure of the perforation. LeRoux has pointed out in a small series¹⁸ that over one-half of patients with perforated ulcers have a lobular or lobar atelectasis demonstrable by x-ray examination prior to operation. He logically suggests that all such patients should be subjected to bronchoscopy at the time of surgery. In any event, a more aggressive attitude towards attempts to prevent and more effectively manage postoperative complications seems to be indicated.

Other unavoidable factors remain that have a direct effect on the mortality rate whatever method of management may be employed. For instance, Berne found, in a large series of patients reported from the Los Angeles County Hospital, in 1958, that whereas the operative mortality for all patients operated upon for perforations was eleven percent, it was only four percent for patients under fifty-years-of-age and sixteen percent for patients over sixty-years-of-age. At the Buffalo General Hospital, the average age of the survivors is forty-eight years and the average age of those dying is fifty-nine years. This age differential has within

TABLE V LATE RESULTS IN PATIENTS WITH PERFORATIONS OF PEPTIC ULCERS CLOSED BY SUTURES

	YEAR OF REPORT	NO FURTHER DIFFICULTY	RECURRING SYMPTOMS	DEFINITIVE SURGERY REQUIRED
Bisgard	1956		70%	
Matheson	1956			50%
Hoyer	1957	28%	72%	44%
McCaughan	1957			40%
Berne	1958	30%		
Desmond	1958			50%

TABLE VI POSTOPERATIVE COMPLICATIONS OCCURRING IN PATIENTS WITH PERFORATIONS OF PEPTIC ULCERS TREATED BY SUTURE CLOSURE, BUFFALO GENERAL HOSPITAL, '42-'58

	NUMBER	DEATHS
Wound Infection	13	0
Wound Disruption	12	1
Sepsis—Miscellaneous	5	4
Pulmonary Infection	11	4
Thrombophlebitis	3	0
Hemorrhage from Closed Ulcer	3	1
Obstructive Jaundice	1	0
Postoperative Psychosis	1	0
Pulmonary Embolus	1	1
Coronary Thrombosis	1	0
Pyloric Obstruction	1	0
Transfusion Reaction	1	0
Parotitis	1	0
TOTAL	54	11

TABLE VII RELATION OF MORTALITY RATE TO TIME ELAPSING BETWEEN PERFORATION AND SUTURE CLOSURE IN PATIENTS WITH PERFORATED PEPTIC ULCER, BUFFALO GENERAL HOSPITAL, '42-'58

TIME INTERVAL	NO. OF PATIENTS	MORTALITY %
0-6 hrs.	81	5%
7-12 hrs.	50	8%
13-18 hrs.	15	20%
19-24 hrs.	13	23%
Over 24 hrs.	12	42%

it, at least in part, the effect of the presence of concomitant chronic disease.

The direct relationship between the mortality rate and the time interval between perforation and closure has been well known for a long time. In our own experience, the free use of antibiotic drugs in the postoperative period, as has been the rule since 1942, does not seem to have altered this situation a great deal.

It is generally true that acute perforations of gastric ulcers are always associated with a higher case-fatality rate than perforations of duodenal ulcers, whatever method of management may be employed in their treatment. At the Buffalo General Hospital, the ratio has been in the order of twenty-five percent to fifteen percent. Why this should be so is not entirely clear. There is, however, a relatively higher incidence of gastric ulcer in the female and as a rule women present themselves for treatment of a perforation later than do males for some reason. The large gastric reservoir may also produce greater peritoneal soiling following perforation than that which occurs following a duodenal perforation.

Berne of Los Angeles, on the basis of an extensive experience, has indicated that better results might be achieved following the suture closure of perforations, if more attention were paid to the preoperative preparation of the patient, especially with regard to the intravenous administration of fluids including plasma and blood. Cope's extensive and detailed metabolic studies⁷ at the Massachusetts General Hospital have shown that the intraperitoneal loss of fluid, protein and electrolytes occurring in patients with perforated ulcers is much greater than might be expected and tend to confirm Berne's idea. The old idea that the patient, following a perforation of a peptic ulcer, did not go into a state of true shock but experienced rather a transient period of collapse from which he spontaneously recovered after two to four hours, has, in the past, probably tended to minimize the emphasis which rightly should be placed on adequate preoperative preparation.

Management by Gastric Resection

In recent years, dissatisfaction with the results obtained in the treatment of acute perforations by suture closure has encouraged a number of surgical clinics in this country to treat selected cases by primary gastric resection. In some European hospitals, this has been the custom for some time. The criteria for selection has varied from clinic to clinic. No one has attempted to apply this method of management in a routine fashion and, most likely, any such attempt would be unwarranted. The reported results, however, are truly remarkable.

In spite of the apparent clinical paradox, namely that some patients with perforated ulcers can better tolerate a resection of their stomachs than a closure of the perforations by sutures, the figures given in Table VIII would seem to speak for themselves. Those of us who in the past have been reluctant to accept this method of management should reevaluate our stand perhaps. Without question, two important factors in these improved results are the proper selection of patients and technical ability of a high order in good hospital facilities. All agree that patients selected for gastric resection should be young and that the interval between perforation and resection not be too long. What is a "young" patient? Some writers say a patient under forty-years-of-age, others say under fifty or even fifty-five-years-of-age. Resections performed for perforations that have existed for more than twelve hours are infrequent. Most writers that advocate this method of management restrict it to cases which can be operated upon within six hours of the perforation. Patients without other disease and in good general condition are much to be preferred. The higher mortality associated with the suture closure of perforated gastric ulcers as compared to duodenal ulcers is said to increase the indications for resection in the former type of patient.

Aside from the possible decrease in the total mortality which may be achieved by gastric resection, other arguments have been made in favor of this method of treatment. One applies

TABLE VIII OPERATIVE MORTALITY FOR SELECTED PATIENTS WITH PERFORATION OF PEPTIC ULCERS TREATED BY SUBTOTAL GASTRIC RESECTION

	TOTAL PATIENTS	PATIENTS RESECTED	OPERATIVE MORTALITY % TOTAL	OPERATIVE MORTALITY % RESECTED
Cooley (1955)	199	112	7.5%	4.5%
Baltzersen (1956)	313	175	10.2%	4.0%
LeFebvre (1956)	94	50	7.5%	4.0%
Hoyer (1957)	2,224	763	10.3%	5.6%
Desmond (1958)	114	62	8.2%	3.4%

TABLE IX RESULTS OF NON-OPERATIVE TREATMENT OF PERFORATED PEPTIC ULCER IN SELECTED PATIENTS

		NO. OF PATIENTS	MORTALITY %
Seeley	1956	139	5.0%
Taylor	1957	1,102	5.2%
(collected series)			
Taylor	1957	235	11.0%

only to gastric ulcers in which a carcinoma may be involved. In such instances, a resection, if possible, is certainly to be desired. A second point is made that resection will greatly decrease the late morbidity which follows suture closure in seventy percent of the surviving patients. In other words, resection can be considered as a definitive curative procedure while suture closure in a majority of instances is only a palliative procedure.

Management by Aspiration

Whereas the use of suction applied to an indwelling gastroduodenal tube has been used routinely for many years as an adjunctive therapeutic measure in the management of perforated ulcers, the suggestion that it can be used as the sole definitive means of treatment has aroused little enthusiasm or interest among members of the surgical profession. Seeley²¹ in the United States and Taylor in England have, for some years now, been pointing out the advantage and limitations of this method. They have found it to be suitable for use in a relatively large proportion of patients but most clinics have used it only in those

patients that were moribund or otherwise unsuitable for surgery.

Apparently by a careful selection of cases and by rigorous attention to technic, results comparable to those obtained by surgery can be achieved. The limitations of the method have been fairly well defined. Taylor's article in the September 1957 issue of *Gastroenterology* treats this subject in a fair and comprehensive manner.²³ Taylor noted that when aspiration was used in the treatment of gastric perforations, there was a mortality of thirty-three percent and that when it was used in cases of perforation of chronic ulcers, there was a mortality of fifteen percent. A chronic ulcer was defined as one that had had symptoms for three months or more prior to perforation. In addition, he noted that only thirteen percent of acute ulcers gave further trouble after perforation when treated by aspiration but that eighty-five percent of chronic ulcers so managed had a continuing morbidity. Taylor, himself, therefore tended to favor surgical

management for the patient with a perforated chronic ulcer and for all perforated gastric ulcers.

Patients in whom an established bacterial peritonitis and toxemia are present are not suitable candidates for aspiration. Difficulties peculiar to this type of treatment are the necessity of complete cooperation on the part of the patient, the presence of any marked degree of aerophagia and the absolute necessity of the physician-in-charge to give his close and almost constant attention to the progress of the patient. Experience with this method of treatment at the Buffalo General Hospital has been confined to those patients considered to be unsuitable for operation or who refused surgery after its recommendation. During the past seventeen years, twenty such patients have been treated. Sixteen (eighty percent) of these died. Such an experience, however, cannot be construed in any way as evidence against the use of this method in the manner recommended by its proponents.

Conclusion

What then can the surgeon and practitioner conclude about this matter? All of us must exercise our surgical conscience. It might be best to first find out how many of our patients are not given the best chance to survive a perforation due to the failure to make an early diagnosis. There are probably more of these instances than one might think. Patients with acute abdominal symptoms should all have careful x-ray studies if possible, to detect free gas in the peritoneal cavity before the decision is made to delay operation or not to operate at all.

About three out of every four perforations can be detected in this manner.

More attention should be paid to the preoperative preparation of the patient, especially with regard to a more adequate administration of fluids, including plasma and blood. The tendency to rush and hurry a patient to the operating room late at night is a very natural one, but sometimes the hour or so that is saved, at the expense of adequate preopera-

tive treatment, can compromise the patient's chance of recovery.

For the occasional operator, the best results and lowest morbidity will be achieved by continuing to use the suture closure method of management more or less routinely. The skillful surgeon with wide experience can, by a careful selection of patients, employ gastric resection as a primary procedure with profit. Until a more adequate experience has been obtained in this method of management, it is suggested that patients be selected for resection that fulfill the following criteria:

- 1. Resection to be done only after adequate preoperative preparation and within six hours of the time of perforation.*
- 2. Age of patient to be under fifty years.*
- 3. Type of perforation to be that of a gastric ulcer or of a duodenal ulcer that has caused appreciable symptoms for more than three months.*
- 4. Patient to be free of any serious concomitant disease.*

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CONTACT LENSES

In recent years, the use of contact lenses has aroused a great deal of interest. Physicians in nearly all fields of medicine are frequently asked their opinion regarding the usefulness and practicality of these lenses. It is the purpose of this communication to present a brief review of the current types of contact lenses available, to summarize the advantages and disadvantages of contact lenses, and to discuss the indications for the use of contact lenses.

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Actually, the principle of contact lenses has been known for about four hundred and fifty years. Contact lenses have been used for ophthalmological reasons for about seventy-five years. It has only been in the past twenty-five to thirty years that certain principles of lens construction were developed that allowed the frequent application of contact lenses to patients. With certain other modifications and improvements made in the last ten years, the present day use of contact lenses has become very widespread.

To provide a background for the understanding of the clinical usefulness of contact lenses, a few refractive properties of the eye and optical principles of contact lenses are discussed below.

Optical Principles of Contact Lenses

The human eye has two principal refracting structures, namely, the cornea and the lens. The cornea possesses four times as much refracting power as does the lens. The anterior surface of the cornea is the most powerful refracting surface of the eye. To a large extent, this refractive power exists because of the difference of the index of refraction of the air and the cornea. When a contact lens is fitted to an eye, virtually all of the refractive power of the cornea is lost, since the refractive index of the contact glass, the tear film, the cornea and the aqueous humor is nearly the same. The anterior surface of the contact glass then becomes the principal refracting surface of the eye. Thus, the correction for the patient's refractive error is ground onto the anterior surface of the contact lens.

Astigmatism refers to an unequal refraction (bending) of the different rays of light by the different meridians of the refracting surface. It exists because of a difference in the radii of curvature of the different meridians of the refracting surface. When the greatest difference between the radii of curvature is at 90°, the

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astigmatism is called regular astigmatism. When the meridians of the greatest difference of radii of curvature are not at 90° , irregular astigmatism exists. Regular astigmatism may be corrected by ordinary spectacles; irregular astigmatism is not corrected by spectacle lenses. Astigmatism may be either due to an irregular surface of refraction of the cornea or of the lens (lenticular astigmatism). Most astigmatism is corneal in origin.

As mentioned above, the effective refracting power of the cornea is eliminated when a contact lens is fitted to the eye. Therefore, all corneal astigmatism, both regular and irregular, is eliminated with a contact lens. However, lenticular astigmatism is not effected by contact lenses.

Types of Contact Lenses

There are two principle types of contact lenses, the corneoscleral contact lens and the micro or corneal contact lens. The corneoscleral lens is the larger and heavier type of lens. It covers the entire cornea and has a flange that extends out onto the sclera against which it rests.

Originally, it was necessary to use special buffered fluids to place between the corneoscleral lens and the cornea. Later it was found that the natural tear film was much more satisfactory than any substitute fluid. Accordingly, the corneoscleral lens was modified by placing holes or channels in it to allow an exchange of the patient's tears under the contact lens (See Illustration).

The advantages of the corneoscleral contact lenses are that they do not fall out of the eye easily and that they are initially more comfortable.

Since the lenses do not move around in the eye, a correction for lenticular astigmatism may be ground on the front surface. The disadvantages are quite numerous. They are bulky inside the eyelids. They do not allow a free exchange of the tear film. Since they cover the cornea completely, they cause marked interference with the aerobic metabolism of the cornea. In addition, they interfere with the cir-



TEAR FILM



MICRO OR CORNEAL CONTACT



ARTIFICIAL FLUID



CONVENTIONAL CORNEAL SCLERAL CONTACT



TEAR FILM



CORNEAL SCLERAL CONTACT
(CHANNEL BELOW FOR TEAR
FILM EXCHANGE)

ulation to the cornea by compressing the limbal blood vessels.

The micro or corneal contact lens is a thin, light lens that is held in place by the capillary traction of the tear film in front of the cornea. The diameter of these lenses vary from 6 mm. up to 12 mm. The most common size is about 9 or 10 mm. They move rather freely around on the cornea and cover only a portion of the cornea at one time (the corneal diameter is 12 mm.). The advantages of these lenses are: 1) They look better cosmetically. 2) They interfere less with the circulation to the cornea. 3) They interfere less with the aerobic metabolism of the cornea. 4) Patient tolerance of the micro lens is higher than for the corneoscleral lens. The disadvantages of the micro or corneal contact are: 1) They fall out of the eye more easily than the corneoscleral lenses. 2) They are more irritating initially. 3) Lenticular astigmatic corrections may not be ground on their front surface since the lenses keep changing position.

Most of the contacts currently worn by patients are the micro or corneal contact type.

Optical Advantages

The optical advantages of contact glasses are:

1) The annoying aberrations encountered in spectacle lenses with high corrections are removed.

2) The peripheral aberrations obtained in spectacle lenses by turning the eyes to the side are removed. Contact lenses move with the eye so that the wearer is always looking through the center of the lens.

3) All corneal astigmatism is eliminated with contact glasses.

4) The retinal image size discrepancy between two eyes with high differences in refractive error is reduced. A patient who has had a cataract removed in one eye and normal vision in the other eye can obtain binocular vision by wearing a contact lens over the operated eye.

5) The visual field is wider with contact lenses than with ordinary spectacle lenses.

Indications

The indications for contact lenses are:

1) Irregular corneal astigmatism, especially in cases of keratoconus (conical cornea).

2) High refractive errors, especially myopia (nearsightedness).

3) Monocular aphakia (absence of lens—usually surgical removal).

4) Protection of cornea; in cases of facial nerve palsies, loss of corneal sensation, and irritation from lids (wild lashes, entropion—lid margin turned in).

5) Certain occupations where regular glasses might be an inconvenience—actors, dancers, athletes, etc.

6) Protection against sunlight. In cases of albinism, contacts may be worn that have the periphery painted to give the same effect as a heavily pigmented iris.

7) Cosmetic. Certain corneal scars may be covered with a painted contact glass.

8) Psychological. Many young ladies feel their social life can be improved if they substitute contact lenses for regular glasses. This is the largest single group of patients that seek contact lenses from an ophthalmologist.

Disadvantages

The disadvantages of contact lenses are:

1) They are expensive. Contact lenses usually cost the patient \$150-\$200.

2) They are somewhat irritating to the eyes, particularly on initial use. Many patients are able to build their wearing time up to twelve or fourteen hours, but a large number of patients are never able to wear them more than four to six hours at a time.

3) Several fittings and examinations are necessary for most patients.

4) Contact lenses are easily lost, frequently at the most inopportune time.

5) Contact lenses are somewhat of a nuisance to insert into the eye and to care for. They must be cleaned in a mild germicidal solution and immersed into a wetting solution before inserting them.

6) Prolonged wearing frequently causes edema of the cornea due to anoxia. This re-

sults in visual blurring as well as discomfort.

7) If improperly fitted they may cause corneal ulceration.

Patient Acceptance

Patient acceptance of contact lenses is largely dependent upon the accuracy of fitting of the contacts and the motivation of the patient.

Corneoscleral lenses are fitted by making a mold of patient's eye or by trying on certain stock lenses for size. The micro or corneal lenses are fitted by measuring the corneal sphericity with a keratometer (an instrument for measuring the curvature of the anterior surface of the cornea). The sphericity of the cornea varies from the central area to the periphery. Consequently, it is necessary to vary the curvature of the contact lens in the central and peripheral portions in order to get it to properly fit the eye. Many of the patient discomforts in wearing contacts result from an improper fitting of the intermediate and peripheral segments of the contact lens to conform to

the varying spherical segments of the cornea. Unfortunately, there is not yet good standardization of contact lenses by the different manufacturers of these lenses.

If there is no proper motivation, patients will not generally tolerate contact lenses. The patient has to have a good reason for wearing contacts; otherwise the disadvantages will keep him from accepting them. Either the vision must be considerably improved with contacts or else there must be strong social reasons for wearing them before a patient will accept contact lenses.

If properly motivated, ninety percent of the patients given contacts will wear them, providing they are well-fitted.

In a recent survey, it was found women were more tolerant of contact glasses than men. It was also discovered that nearsighted people accepted contacts better than farsighted individuals. Laborers were less tolerant of contact lenses than were white collar workers and professional people.

Summary

The optical system of the eye is altered by contact lenses so that the anterior surface of the contact lens becomes the principal refracting surface of the eye. There are two types of contact lenses, the corneoscleral lens and the micro or corneal lens. The micro contact is the type most commonly prescribed, although each type has certain advantages.

There are medical and social indications for the use of contact lenses. Contact lenses have several optical advantages over regular spectacles. However, there are some discomforts and annoyances that may accompany their use. Acceptance of contact lenses is dependent upon patient motivation and accuracy of fitting of the lenses.

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Ataractic Drug Therapy

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One might expect neurological side effects to accompany the use of drugs whose major site of action is in the central nervous system, and the nature of any undesirable side reactions may be expected to reflect, to a certain extent, the primary locus of drug action. It is generally believed, from experimental and clinical observations, that the ataractic drugs exert their principal effects on various subcortical regions by reducing the afferent inflow throughout the central nervous system.¹ The two chief sensory pathways of the brain are the lemniscal and extralemniscal systems. The mesodiencephalic activating system, as indicated in Figure 1, consists of the midbrain reticular formation (which presumably integrates and coordinates visceral and muscular activities in response to sensory stimuli) united functionally with the diffuse thalamic projection system. It has also been suggested that the limbic cortex and its connections may serve to integrate the activities of both these systems with the neocortex.² It should be evident that interference with activity of any portion of this organizational structure must necessarily affect the activity of related subcortical regions and higher centers directly or indirectly. Indeed, it is somewhat surprising that in so many instances tranquilization is the only evident effect of the ataractic drug. (It may well be that extraneous effects

are usually concealed by homeostatic mechanisms.) Moreover, because of the diagrammatically-indicated interdependence of these structures, drugs with presumably different loci of action within this system may have essentially identical clinical or side effects.

In this discussion, we shall consider three general classes of ataractic drugs, i.e., rauwolfia alkaloids and synthetic analogues, the phenothiazines, and the propanediols. The diphenyl methanes will not be discussed since it is difficult to differentiate many of these derivatives from hypnotics.

At present, there is an only fragmentary knowledge of the neurochemistry and neurophysiology of the intimately related subcortical regions; knowledge of their neuropharmacology is also limited. This discussion must therefore be based primarily upon clinical observations but will occasionally present currently entertained explanatory hypotheses. Because of the numerous close chemical relationships within various ataractic drug groups, these agents for the most part will be discussed as classes rather than individually.

Although the main feature distinguishing the ataractics from the sedatives and hypnotics is

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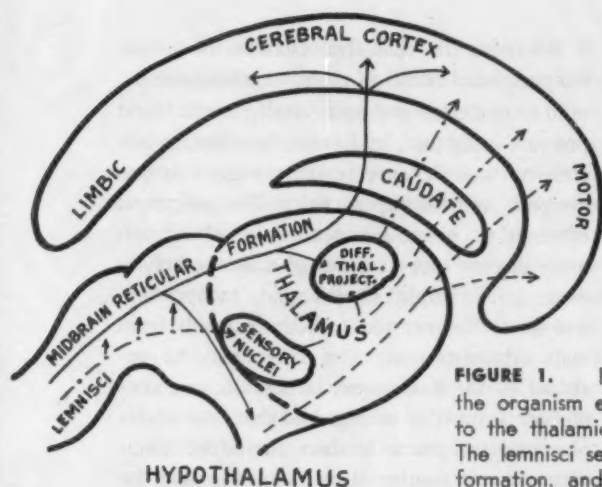


FIGURE 1. Mesodiencephalic activating system. Stimulation of the organism evokes impulses which travel by way of the lemnisci to the thalamic sensory nuclei and then to cortical sensory areas. The lemnisci send collateral nerve fibers to the midbrain reticular formation, and by these fibers impulses advance in the reticular formation to the diffuse thalamic projections and arouse the cerebral cortex. Collaterals bearing stimuli from the midbrain reticular formation pass to the hypothalamus, which in turn sends impulses to the cerebral cortex. (From Himwich, Harold E.: Psychopharmacologic drugs. *Science*, 127:64, Jan. 10, 1958. Reproduced by permission of the author.)

considered the quieting effect of the former without significant somnifacience, as with most drugs extension of the therapeutic effect is possible, and in sufficiently large doses or in highly sensitive subjects, sleep, stupor, and even coma may be induced by any of these agents. As might have been predicted in view of the fact that these drugs are usually prescribed for patients with emotional disturbances, practically all have been used in overdosage with suicidal intent, alone or in combination with other central nervous system depressants. Stupor or coma due to any one of these drugs alone generally is easily combatted with mild stimulants along with good symptomatic therapy. As already indicated, however, other depressants are often concomitantly ingested; these include most frequently alcohol and the barbiturates. In view of the recognized potentiation of these depressants by the phenothiazines in particular, dangerous levels of reduced central nervous system activity may be achieved and more aggressive antidotal therapy may be required. Since it has been demonstrated, at least electrophysiologically, that the ataractics as well as other central nervous system depressants, e. g.,

alcohol or barbiturates, directly or indirectly affect the reticular formation,³ one would not expect to be able to differentiate clinically between coma induced by any of these agents, regardless of whether they influence input or output of sensory stimuli. One must, therefore, rely upon chemical identification procedures for differentiation.

Although it is generally recognized that many neuropharmacological depressant agents (alcohol, barbiturates, opium alkaloids, mephenesin) possess an addiction liability, as may be evidenced by physiological withdrawal syndromes upon discontinuance of chronic administration, remarkably little has been attributed in this regard to the ataractic drugs. Meprobamate, which is chemically related to mephenesin, is an exception although, even here the rarity of habituation when given in recommended dosages is striking, particularly in view of the type of dependent personality for whom it is so often prescribed.

Increased psychomotor activity is occasionally encountered as a paradoxical effect upon acute administration of all of these drug classes with the possible exception of meprobamate.

Such excitation has also been noted even with the classical hypnotics and sedatives and is commonly considered to represent a "release phenomenon." It may be of interest that promethazine in large doses may cause excitation, but this is supplanted by sedation upon continued administration of the drug.

Although the desirable action of these drugs is the reduction of increased psychomotor activity and emotional tension, they may sometimes induce frank depression of mood. This may occur in presumably normal persons but is particularly prone to appear where depression already exists. The effect may be seen with any of the ataractic drugs, but most frequently with rauwolfia alkaloids, especially reserpine. Depression may be sufficiently marked so that the patient becomes suicidal. It is evident that the ataractic drugs should be prescribed only when there is a marked element of tension or agitation, and even then close supervision is required. In view of the high incidence of depression induced by these agents, a careful history designed to uncover their possible role as an etiologic factor should be obtained in all depressed patients.

Of the three groups of drugs under discussion, those which tend to affect the autonomic nervous system are the rauwolfia alkaloids and the phenothiazine derivatives; the propanediols have no evident effect in this regard. The rauwolfia alkaloids have been demonstrated to decrease bound serotonin and nor-epinephrine concentrations within the central nervous system.⁴ According to some, norepinephrine and serotonin may function as neuro-humoral transmitters in the diencephalon, acting in reciprocal equilibrium, the former being sympathomimetic and the latter parasympathomimetic in action.⁴ Monamine oxidase is considered to be at least one of the enzymes responsible for the deactivation of both. In this rather simplified schema, it has been postulated that reserpine administration may produce parasympathetic effects by virtue of preventing the binding of free serotonin while the phenothiazines may be centrally sympatholytic by blocking the central action of norepinephrine.

Whatever the central mechanism of action, the peripheral effects of reserpine (bradycardia, mild to moderate and occasionally severe blood pressure reduction, and gastrointestinal hyperactivity and hypersecretion) suggest parasympathomimetic hyperactivity. The peripheral effects of the phenothiazines, on the other hand, more closely suggest those of a sympatholytic drug; for example, constipation, tachycardia, and acute hypotension sometimes result from their administration. The latter may be resistant to the vasopressor action of norepinephrine. It must be emphasized that both reserpine and the phenothiazines should be given with extreme caution to patients who may be prone to vascular collapse, since the drug-induced suppression of homeostatic mechanisms renders shock induced by these agents resistant to treatment. In elderly normotensive subjects with cerebral atherosclerosis, even moderate reduction of pressure induced by these drugs may render the patient susceptible to cerebral ischemia or infarction. An interesting exception exists in the case of promethazine which, although an isomer of promazine and having many phenothiazine-like effects, has not been reported to induce hypotension and, in fact, often produces slight blood pressure elevation.

As previously indicated, it is probable that these peripheral vegetative effects are mediated through drug action upon central autonomic nuclei in the rhinencephalon and/or hypothalamus. Certain clinical observations further suggest an action of these drugs upon these regions. For example, thermo-regulatory disturbance (reduction of body temperature) is often associated with the administration of rauwolfia alkaloids and phenothiazines. Rarely hyperthermia is seen. Although both appetite and libido are reported to be influenced particularly by the ataractics, how much of this is psychogenic rather than of autonomic origin is uncertain.

Evidence of the action of these drugs upon the hypothalamic-hypophyseal axis is mostly related to the occasional observation of gynecomastia or even lactation. Changes in electrolyte and water balance (e. g., rare instances of dia-

betes insipidus) may be directly related to the pharmacologic effects of ataractics upon the neurohypophyseal structures.

Grand mal seizures have been not infrequently precipitated by administration of the phenothiazines and occasionally by other ataractics in patients with a previously demonstrated tendency toward such seizures, as indicated by abnormal electroencephalograms, or by a history of previous convulsive episodes, or head injury. It is tempting to speculate upon the possibility that the ataractic drugs interfere with subcortical impulses which normally inhibit rhythmic cortical activity, analagous to the sleeping state, during which seizure-susceptible patients are often more prone to experience attacks. On the other hand, it has been suggested from electrophysiological studies in the cat that seizure activity induced by rauwolfia alkaloids and the phenothiazines is initiated in the amygdala and spreads through the rhinencephalic structures and thence to the motor cortex.

It has long been recognized that the basal ganglia and the subthalamic nuclei are concerned with "motor integration of stereotyped behavior" and that disturbances of posture and locomotion are associated with lesions affecting these structures. Recent experimental observations regarding the mechanism of Parkinson's syndrome have been concerned with the role of the reticular formation in the production of the disorder, in view of the fact that this structure represents the main efferent system through which extrapyramidal impulses reach motor neuron units of the spinal cord. Electrolytic lesions and electrostimulation in the reticular formation have been demonstrated to produce in monkeys a rhythmic tremor closely simulating that seen clinically in parkinsonism.^{5, 6} Furthermore, it has been demonstrated that both reserpine and chlorpromazine stimulate the reticular formation of rabbits (the former requiring much smaller doses) and produce extrapyramidal abnormalities.⁷ In retrospect, since ataractic agents presumably exert their principal effects on subcortical structures, it should not be surprising that extrapyramidal

disturbances are frequently attendant upon their clinical use.

The extrapyramidal symptoms are sometimes caused by reserpine but more often by the phenothiazines, perhaps because of the wider popularity of the latter. During the earlier use of the phenothiazine drugs, chlorpromazine was regularly administered in excessively high doses, and it was believed that the appearance of extrapyramidal symptoms was an indication of adequate therapy. It is interesting that the incidence of such manifestations appears to be relatively rare during the administration of the dechlorinated derivative (promazine) even when given in comparatively large doses. With the introduction of newer and more potent phenothiazine derivatives, a relatively high incidence of diverse extrapyramidal symptoms, some of which can be alarming, is present despite recommended doses so low that a therapeutic action may often be barely discernable. In fact, there seems to be little relationship between dosage level or route of administration of these derivatives and their liability to induce extrapyramidal abnormalities.

These disorders of posture and motion, besides simulating a clinically characteristic Parkinson-like state, may also include motor restlessness or "jitters" and various dyskinetic spasms, such as involuntary protrusion of the tongue with tonic contraction of face and neck muscles, oculogyric spasms, torticollis, opisthotonus, rigidity, myoclonic twitches, and generalized flexor contractions. These may be associated with unresponsiveness, speechlessness, and apparent dissociation from the environment. Such disturbances are certainly characteristic of disorders of the basal ganglia and subthalamic nuclei, but one cannot determine at the present time whether they represent stimulation or inhibition of these structures, or release of other areas (stimulation of reticular formation). In this regard, it has been suggested that the tranquilizing drugs may have some predilection for the basal ganglia, hypothalamic vegetative centers, and mesencephalon, as evidenced by cytologic changes in these structures after their administration.⁸

It is interesting that the agents most effective in the treatment of Parkinson's syndrome are also the most powerful depressants of the reticular formation, the same anatomical structure which, when stimulated, gives rise to extrapyramidal abnormalities.⁹ As might be expected, therefore, the extrapyramidal side-action of rauwolfia alkaloids and phenothiazines are best managed by discontinuation of the drug and by administration of belladonna alkaloids

and related anti-Parkinson drugs.

Although to our knowledge there have been no reported cases of permanent extrapyramidal residua following discontinuance of the offending drug, it is not unreasonable to expect that irreversible subclinical damage may occur perhaps rendering the individual more susceptible to future parkinsonism of "idiopathic" origin or that associated with cerebral vascular disease.

Summary

The various neurological complications associated with the use of the ataractic drugs have been reviewed. Most of these side actions, it is true, constitute minor annoyances, but some may be alarming to the physician as well as to the patient, and several may be actually or potentially dangerous. The latter alone should be considered a contraindication to the indiscriminate use of these drugs. We can see no advantage to the continued introduction of ataractic agents which are more powerful on a weight basis unless this increased potency is accompanied by a lowered incidence of side

effects. The achievement of this end in the case of certain phenothiazine derivatives is probably more apparent than real, since the recommended doses may be homeopathic but, nevertheless, render the patient susceptible to allergic complications and/or undesirable neurological sequelae.

It should be realized that the understanding of the mechanisms of complications attendant upon administration of the various ataractic drugs will ultimately depend upon more definitive knowledge regarding the total organization of the central nervous system.

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DROWNING

Man's inability to sustain life by breathing water has been established repeatedly. During recent years, there have been from six to eight thousand deaths from drowning annually in the coastal and inland waters of the United States.

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Although there is an abundance of information concerning factors which predispose to accidental death from drowning collected and published by para-scientific organizations,¹ reference to most medical texts will fail to disclose any mention of drowning. It has been established that sixty-two percent of the victims of drowning in the State of Maryland in a given year had imbibed alcohol shortly prior to death.² Yet little is known concerning the actual mechanism of death. Post-mortem morphological studies yield little information concerning the physiological changes preceding death.

Early Studies

Several attempts have been made to classify the process of drowning and to subdivide it into stages based upon observation of the overt response of animals to submersion. In the dog, submersion is followed by breath-holding, swallowing of large volumes of water, vomiting, terminal gasps with flooding of the lungs and death, all in rapid sequence. When drowning

was interrupted prior to the stage of "terminal gasps," spontaneous survival usually followed.³ Resuscitative efforts had relatively little effect on survival.

Laboratory evidence, gradually accumulated, indicates that the mechanisms of death are very complex. As early as 1902, Revenstorff⁴ first reported that in fresh water drowning in animals, large volumes of water pass rapidly through the lungs into the circulation.

Circulatory Changes During Drowning

Since that time a number of investigators⁵ have demonstrated in animals, that in fresh water drowning, large volumes of water pass through the lungs producing marked hemodilution, hypervolemia, hemolysis, electrolyte imbalances and sudden death from ventricular fibrillation (Figure 1). On the other hand, sea water in the lungs produces loss of fluid and protein from the circulation into the lungs re-

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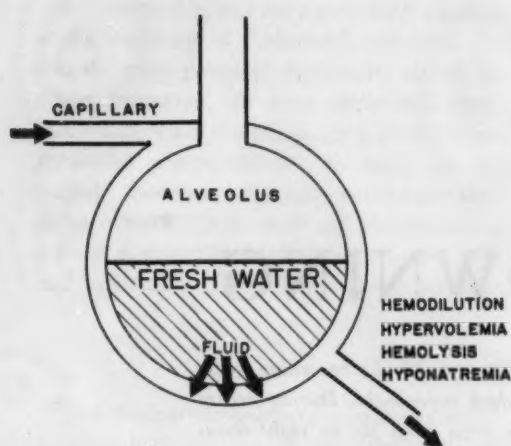


FIGURE 1. Circulatory changes in fresh water drowning.

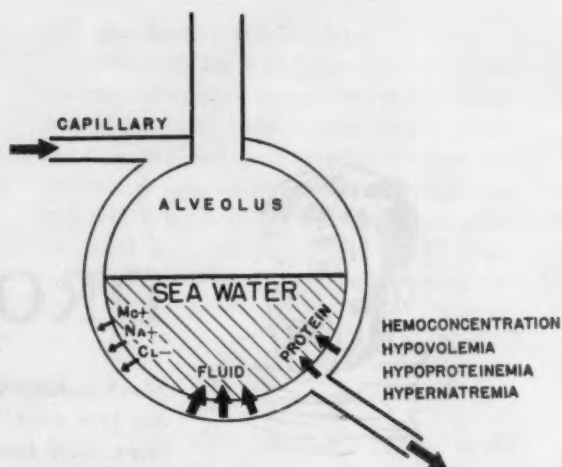


FIGURE 2. Circulatory changes in sea water drowning.

sulting in hypovolemia, marked hemoconcentration and death with pulmonary edema (Figure 2).

In spite of the lack of information concerning the processes involved, numerous resuscitative measures to be applied in cases of near-drowning have been advocated. Most of them have been based on the assumption that drowning is essentially death from obstructive asphyxia with the complication of large volumes of water filling the lungs. Much stress has been placed upon the removal of water from the lungs and stomach during the early phase of resuscitation. Even though the inadequacy of the manual methods of artificial respiration (back-pressure arm-lift, chest pressure arm-lift, etc.) in resuscitating apneic victims of asphyxia has been clearly shown,⁶ the idea is still prevalent that these methods may be of value in expelling water from the airway.

Spontaneous Recovery

In our early studies⁷ on dogs whose lungs were flooded with either fresh water or sea water, we noted that spontaneous breathing movements did not stop until after circulatory arrest. Spontaneous recovery occurred when sea water flooding was stopped before profound arterial hypotension developed. Similarly,

spontaneous recovery occurred when fresh water flooding did not lead to ventricular fibrillation. When these facts are considered, it is evidently erroneous to conclude that a resuscitative measure is of value because it has been used during a successful attempt to resuscitate a victim of near-drowning. It is unusual to be able to determine from the account of an observer at an actual rescue whether the victim was breathing spontaneously.

Laryngospasm

Moreover, in these early experiments, we found that death occurred only one to two minutes earlier when flooding of the lungs was performed through a tracheotomy tube than when the animal's head was submerged under water and the lungs flooded naturally through the upper airway. This indicates that the duration of breath-holding and laryngospasm is very brief in the dog during the process of drowning. In human drowning, Moritz⁸ estimated that less than ten percent of the victims die of obstructive asphyxia before water reaches the lungs. The familiar clinical observation of severe and prolonged laryngospasm resulting from small amounts of liquid in the larynx of an unconscious person led us to the conclusion that in human drowning, submersion must lead

TABLE 1 RESUSCITATION FROM DROWNING (Experimental)

INJURY	TREATMENT TESTED	RESULT
Spontaneous breathing with fresh water in lungs	None	Spontaneous survival possible
Spontaneous breathing with sea water in lungs	None	Spontaneous survival possible
Obstructive asphyxia until apneic	IPPB/air	Survival
Obstructive asphyxia with fresh water in lungs	IPPB/air	Sudden ventricular fibrillation
Obstructive asphyxia with sea water in lungs	IPPB/air	Partial reoxygenation, delayed pulmonary edema and death
Obstructive asphyxia with sea water in lungs	Prolonged IPPB/ O ₂	Complete reoxygenation, delayed pulmonary edema and death
Obstructive asphyxia with sea water in lungs	Prolonged IPPB/ O ₂ with plasma infusion	Complete reoxygenation and Survival

to prolonged laryngospasm. Asphyxia ultimately relaxes the glottis and the lungs become flooded with water. Since we found human volunteers singularly difficult to obtain and since we were primarily interested in the resuscitation of human victims of near-drowning, we devised a dog experiment⁹ to simulate this sequence of events.

An endotracheal tube was inserted and obstructed to simulate laryngospasm. When asphyxia resulted in cessation of spontaneous breathing efforts, the lungs were flooded with either fresh water or sea water. Some of the animals were subjected only to obstructive asphyxia for a comparable period of time to simulate human victims of submersion removed from the water before relaxation of the glottis and flooding of the lungs. Resuscitation was attempted in all of the animals using intermittent positive pressure inflations of the lungs.

Resuscitation

All of the animals subjected to obstructive asphyxia without flooding of the lungs (Table 1) survived following intermittent positive pressure breathing with air (IPPB/air). When the lungs were flooded with fresh water for thirty seconds following obstructive asphyxia, only fifteen to twenty-six percent of the water

could be recovered from the lungs by passive drainage. The remainder had passed rapidly into the circulation producing massive hemodilution, hemolysis and ventricular fibrillation in each case in less than three minutes.

When the lungs were flooded with sea water after obstructive asphyxia, seventy-three to ninety-six percent of the water was recovered from the lungs by passive drainage. Intermittent positive pressure breathing with air resulted in partial reoxygenation and sustained life. From ten to thirty minutes after IPPB-air was discontinued, in each case pulmonary edema was followed by death. This suggested that more prolonged IPPB utilizing one hundred percent oxygen (IPPB-O₂) would be more effective. When this treatment was applied, reoxygenation was complete but again cessation of positive pressure ventilation was followed by the development of pulmonary edema and death. During this more prolonged period of resuscitation, fluid in excess of the volume of sea water introduced into the lungs was recovered and there was marked hemoconcentration and reduction in circulating blood volume. When plasma infusion to correct the hemoconcentration and hypovolemia was combined with prolonged IPPB-O₂, survival resulted.

These studies suggest a number of points of

practical importance in the management of victims of near-drowning.

1) Since the degree of asphyxiation and the volume of water aspirated are the crucial factors in determining the result, the duration of submersion is an unreliable guide to prognosis in near-drowning. Dogs subjected to complete airway obstruction at the end expiratory point became apneic within two to four minutes; whereas when obstruction was produced at full inspiration, apnea might not follow for as much as twenty minutes.

2) A successful resuscitation in an actual field rescue is of little value in assessing the worth of a resuscitative method, since spontaneous survival is likely in spontaneously breathing victims of submersion.

3) In a victim of submersion who is apneic, IPPB with exhaled air, atmospheric air, or oxygen must be started immediately before circulation deteriorates beyond the point where resuscitation is no longer possible. No time should be wasted in attempts to remove water

from the lungs. In fresh water submersion, no appreciable quantity of water will remain in the lungs if the circulation is intact. In sea water near-drowning, edema fluid will replace any water removed so rapidly that the lungs cannot be kept dry during the early phase of resuscitation. Marked distension of the stomach with water seems to have little effect in impairing resuscitation when IPPB is used.⁷

4) Intermittent positive pressure breathing utilizing exhaled air or atmospheric air should be replaced as rapidly as possible with IPPB utilizing one hundred percent oxygen.

5) In apneic victims of sea water submersion, IPPB once started must not be discontinued until hematocrit, chloride and sodium determinations can be made and necessary corrections achieved by the infusion of plasma.

6) Data concerning hemolysis, hematocrit, sodium, and chloride levels in victims of near-drowning should be reported to increase our familiarity with these phenomena in humans.

Summary

The problem of ventricular fibrillation in fresh water drowning remains a knotty one. We do not know how often it occurs in humans. When it does occur, the onset would seem to be too rapid to allow effective preventive measures.

Should the method of closed chest cardiac massage presently being advocated by Kouwenhoven and Jude¹⁰ prove safe and effective, it

is hoped that this technique, in combination with exhaled air ventilation, might be widely taught to provide a possible first step in resuscitation.

A better understanding of the complex physiological processes involved in drowning is essential if we are to salvage more of the six to eight thousand lives lost in this way each year.

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Undiagnosed Central Nervous System Syphilis

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In this paper, I will attempt to analyze a series of twenty-four case-records of meningo-vascular lues which were undiagnosed prior to admission to this hospital. I have purposely selected only those which had negative blood serological test for syphilis, as many of these were sent from general hospitals where a routine blood STS is presumably done. These patients presented certain signs, alone or in combination, which we have come to consider highly suggestive of syphilitic disease.

Why are so many of these patients not diagnosed? In the first place, so much reliance is placed on a blood STS by many of the younger physicians, who admittedly do not see as much syphilis in this age of antibiotics, that if the test is reported negative, they automatically rule out the disease. As our case reports show, this cannot be done. In these days of the too wide spread use of antibiotics,

many patients are given penicillin for colds, sore throats, and many other infections in doses which are enough to cause an active luetic's blood response to become negative when tested for syphilis, but in amounts insufficient to prevent proliferation of and damage wrought by spirochetal activity.

Yet, if we develop a high index of suspicion when certain manifestations, truly suggestive of lues, are present, we will be able to determine the diagnosis by further laboratory procedures, in spite of a negative blood. If luetic disease is suspected, the next procedure after blood STS is a spinal fluid STS. This will, in the majority of the cases, establish the diagnosis, as in twenty of our cases. However, in a certain percentage of the cases (four in our series), the spinal will also be negative. In these instances, we have resorted to the *Treponema Pallidum* adherence test which was positive in all four of these patients.

One of the advantages of the proper etiological diagnoses of these conditions is that if early treatment (and this includes both specific therapy and physical therapy), is instituted, these cases, particularly the hemiplegics, do remarkably well and are, in many cases, discharged completely independent.

Some of our paraplegics, especially the younger ones, have gone out of the hospital walking with crutches and long-leg braces, and others have been independent in a wheelchair. The disease can at least be arrested and further recurrence prevented. Some of these patients show regression of signs and symptoms after treatment. In this series, ten patients were discharged as improved.

Suggestive Manifestations

The manifestations which we consider to be highly suggestive of CNS syphilis are as follows:

1. **EYE SIGNS**—One of the most consistent signs in our experience has been pupillary and eye ground abnormalities.

a. The classical Argyll-Robertson pupil was found in four patients.

b. An even more frequent sign is pupillary irregularity alone or in conjunction with

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CASE REPORTS OF UNDIAGNOSED CNS SYPHILIS

NO.	AGE	SEX	RACE	PRESENTING NEUROLOGICAL SYMPTOMS	EYESIGNS	BLOOD	SPINAL	TPA
1.	39	M	C	Right Hemiplegia	Normal	Neg.	Pos.	
2.	52	M	C	Left Monoplegia; Vibratory and Position Sense Impaired in Affected Limb	Pupils irregular and sluggish	Neg.	Pos.	
3.	67	F	W	Spastic Paraplegia	Pupils irregular and sluggish	Neg.	Pos.	
4.	64	F	C	Spastic Paraplegia; Positive Hoffman, left,	Retinal Atrophy	Neg.	Neg.	Pos.
5.	56	M	W	Right Hemiplegia; Absence of Pain and Temp. Sensation in Fingers	Pupils Sluggish	Neg.	Pos.	
6.	63	M	C	Bizarre diffuse neurological findings	Bilateral optic pallor	Neg.	Pos.	
7.	45	M	W	Left Hemiplegia	Pupils unequal and sluggish; bilateral optic pallor	Neg.	Pos.	
8.	51	M	W	Ataxia and Spasticity of Left Arm and Leg	Pupils irregular and unequal; retinal atrophy	Neg.	Pos.	
9.	55	M	C	Left Monoplegia	Bilateral optic pallor	Neg.	Pos.	
10.	20	F	W	Muscular weakness, both legs, with absent patella reflexes	Normal	Neg.	Pos.	
11.	62	M	W	Left Hemiparesis	Pupils of Argyle-Robertson type; Retinal Atrophy	Neg.	Pos.	
12.	63	M	W	Left Hemiparesis	Pupils of Argyle-Robertson type	Neg.	Pos.	
13.	53	M	W	Weakness and ataxia of lower extremities	Robertson type	Neg.	Pos.	
14.	41	M	C	Spastic paraplegia	Pupils sluggish	Neg.	Pos.	
15.	54	M	C	Left Monoplegia; Absent Achilles reflexes	Bilateral optic disc pallor; retinal atrophy	Neg.	Neg.	Pos.
16.	55	F	C	Right Hemiplegia	Retinal Atrophy	Neg.	Pos.	
17.	54	M	C	Left Hemiplegia	Sluggish and unequal pupils	Neg.	Pos.	
18.	43	F	C	Spastic Paraplegia	Pupils irregular and sluggish; retinal atrophy	Neg.	Pos.	
19.	52	M	W	Right Monoplegia	Argyle-Robertson pupils	Neg.	Pos.	
20.	60	M	W	Ataxia and weakness of lower extremities with absent vibratory sensation	Normal	Neg.	Pos.	
21.	51	F	C	Spastic Paraplegia	Pupils irregular	Neg.	Pos.	
22.	62	M	W	Left Monoplegia	Argyle-Robertson pupils	Neg.	Neg.	Pos.
23.	42	M	C	Spastic Paraplegia	Pupils irregular and sluggish; retinal atrophy	Neg.	Pos.	
24.	37	F	C	Right Hemiplegia	Normal	Neg.	Pos.	
					Irregular pupils	Neg.	Neg.	Pos.

a sluggish reaction to light. This was found in eleven patients.

c. Pallor of the optic discs, in most cases bilateral, but occasionally unilateral, occurred in five of our patients.

d. Retinal atrophy, the so-called "choroidal sclerosis" or "Tigering," is frequently found in syphilis most usually in conjunction with the pupillary signs. Only nineteen of our twenty-four patients had the fundal findings reported and of these nineteen, ten patients had retinal atrophy.

2. NEUROLOGICAL MANIFESTATIONS—

a. Any unexplained spastic paraplegia—this was the presenting complaint in six of our patients.

b. Hemiplegias in patients of the middle decades, particularly if any of the above eye signs are present. This was the presenting complaint in nine of our patients.

c. Monoplegia—In our experience this is an

extremely significant finding and was present in five of our patients.

d. Ataxia and weakness of the lower extremities—Actually this is one of the more or less classical manifestations of CNS lues, but it was the presenting manifestation in only three of our patients.

Incidence As to Race and Sex—In our total of twenty-four patients, nine occurred in Negro males, eight in white males, five in colored females, and two in white females.

Incidence As to Age—These patients, for the most part, occurred in the forty to sixty age group. Thirteen of our cases occurred in this group.

In the twenty to forty age group, we had only three patients, and in the sixty to seventy age group there were eight patients.

Source of Referral—Fifteen of our patients were admitted by way of general hospitals, and nine were referred by private physicians.

Summary

We have analyzed a series of twenty-four patients of previously undetected central nervous system syphilis, having selected only those in whom the blood STS was negative. Most of these diagnoses were established by means of a positive Spinal Fluid STS. However, in four patients, the diagnosis had to be made by

means of a positive TPA test. If we develop a high index of suspicion when certain clinical signs are present, we will not rule out syphilis until every diagnostic procedure available has been used. Prompt diagnosis and treatment often results in excellent rehabilitation results.

P.O. Box 671



"OFF THE RECORD . . ."

Share a light moment or two with readers who have contributed stories of humorous or unusual happenings in their practice.

PAGES 25a AND 29a.

Ten Helpful Aids in Inguinal

Inguinal hernia is a common malady of mankind. Three to eight percent of our total population suffer from its presence. During World War I, the incidence of inguinal hernia among the young men examined was 1.96 percent and statistics reveal that in the twenty-one to twenty-eight-year age group of World War II, it was the principal cause of rejection in 26.4 of each 1,000 registrants examined.⁵

These figures account for the fact that approximately eight to ten percent of all the surgical procedures in our hospitals today are for the correction of hernias in the groin. In the smaller communities, the procedures are frequently undertaken by the busy general practitioner; while in the metropolitan teaching institutions, the surgical resident often inaugurates his career by being permitted to operate upon the hernias admitted to his ward. With many excellent descriptive works available to serve as a fundamental anatomical and surgical background, these men, generally, are well oriented and completely competent in the basic performance of this type of surgery.¹⁻⁴ However, the primary difference between a smoothly executed operative procedure, followed by an uneventful convalescence, compared with a mechanically correct surgical dissection, fraught with a much higher incidence of postoperative complication, depends, to a great extent, upon refinement in technic. Factors relative to this concept are rarely mentioned in the standard descriptive literature pertaining to the various types of hernia repair. Though little emphasized, their recognition and acceptance are as

important to the ultimate well-being of the patient as is a complete and comprehensive knowledge of the various ways in which an anatomical closure of the inguinal hernial defect may be obtained. This paper is not intended to introduce a new variation to the operative correction of inguinal hernia, but rather to draw attention to some of the commonly observed violations in principle or technic during the overall surgical care of the patient. Appreciation of the importance of these relatively minor factors and their incorporation into the planned surgical procedure more often than not delineates the ultimate difference between a successful and satisfying end result and a stormy convalescence beset by apprehension, distress and unwarranted complication.

1. The Bladder

Most of our hospitals today are operating on an eight to ten-hour surgical schedule. A high percentage of the herniorrhaphies, therefore, are being undertaken in the late morning or early afternoon. Unfortunately, the rigors of such a program have tended to distract the attention of the nursing staff from the absolute necessity of sending the patient to the operating pavilion with an empty bladder. The simplicity of this procedure makes its mention seem to be almost ludicrous; yet it is commonly neglected. It seems obvious that a full or partially filled bladder may present mechanical difficulties to the proper repair of inguinal hernia, especially those of the direct type. Postoperatively, the possibilities of overflow incontinence or, in the event the patient must be catheterized, the de-

Herniorrhaphy

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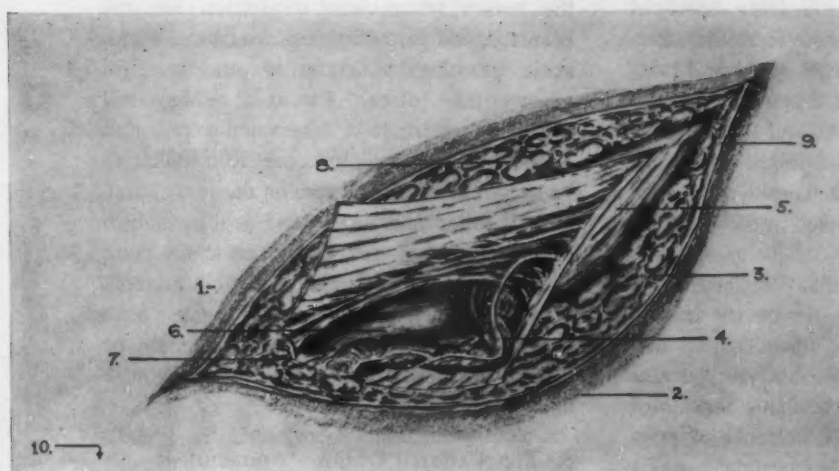


FIGURE 1

1. The bladder.
2. Proper preparation of the skin.
3. Hemostasis.
4. Care of the inguinal nerves.
5. The external oblique aponeurosis.
6. Transversalis fascia.
7. The pubic tubercle.
8. Scarpa's fascia.
9. The skin closure.
10. A scrotal support.

velopment of a posterior urethritis present a definite hazard to normal recovery. These risks are unnecessary and may be avoided by requiring the attending nurse to assume the responsibility of having the patient void at the time of preanesthetic administration.

2. Preparation of the Skin

The commonly used aqueous solutions or tinctures of the popular antiseptic solutions generally are adequate for the preparation of the abdomen for laparotomy. However, the problem in the groin is somewhat different. The increased number of hair follicles and glandular structures accounts for the fact that repeated bacteriological studies have revealed a much higher incidence of coliform bacilli to be found in this area than in the upper abdomen. Generous scrubbing with a detergent-type soap, fol-

lowed by a copious irrigation with sterile water or saline, offers the safest method of sterilizing the skin in the groin. If alcoholic solutions are to be used following the soap and water prep, careful drying of the sulcus between scrotum and thigh is essential, with extreme care being taken to prevent any fluid from remaining in the gluteal fold or under the patient during the course of the operation. Distressing post-operative skin burns and chafing will most certainly result if this is permitted to happen. One must also be aware of the likelihood of desquamation, ulceration or dermatitis developing unless careful drying is carried out prior to the application of wide strips of adhesive tape to skin areas initially prepared with alcohol and

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having become moist with perspiration under the heavy surgical drapes. Healing of these lesions frequently takes longer than the surgical wound itself.

3. Hemostasis

Incisions anywhere on the anterior abdominal wall transect a certain number of blood vessels necessitating careful clamping and ligating, but opening the layers just above the inguinal ligament is especially fraught with the hazard of hemorrhage and hematoma unless extreme vigilance is exercised. The inferior superficial epigastric venous plexus arises from the external saphenous vein at the saphenofemoral junction, fans out to cross the exact area wherein the hernial incision is made, and is the source of a formidable number of tributaries at this site. These veins are under considerable pressure and cannot be overlooked in the surgeon's haste to reach the external oblique aponeurosis muscle and its subcutaneous inguinal ring. Sponge pressure or hot packs do not control this bleeding. Patience in identification and careful ligation of this important vascular network are not exciting or dramatic aspects of hernia repair, but the high incidence of post-operative wound hematoma is ample evidence of their importance. This is one of the most difficult basic surgical concepts to impress upon the neophyte resident in surgery.

4. The Inguinal Nerves

Two important nerve structures course across the operative field during repair of an inguinal hernia. (a) The *iliohypogastric* (from T-12 and L-1) lies between the transversalis and internal oblique muscles and emerges from the external oblique just above the external ring. Its branches supply the skin of the lateral upper thigh and the pubic symphysis. (b) The *ilio-inguinal* (From L-1) may, occasionally, anastomose with the hypogastric, but more consistently comes down on the spermatic cord under the external oblique sheath, emerges at the external ring, and supplies sensation to the medial thigh, root of the penis, and lateral scrotum.

Laceration of either of these nerve trunks, obviously, results in anesthesia throughout the area which they supply. Loss in sensation is not always clearly delineated, for the cross innervation often masks the initial anesthesia and the patient is not aware of the altered feeling. As these are primarily sensory nerves, there is no subsequent atrophic phenomenon and no apparent reason to feel that healing is impaired. More distressing, however, is the agonizing pain, burning, or cutaneous sensitivity experienced by the patient in the areas supplied by the nerves when clean transection has not occurred, and partial ligation, stretching, hemostatic pinching, puncture or other surgical trauma take place. Partial sensation will eventually return to a denervated area, or at least the patient will become accustomed to its loss. Traumatic neuritis, on the other hand, is a disabling and unrelenting problem which eventually may disgust the patient to the point of complete loss of confidence in his surgeon. Halsted's principles of "care of tissue" have never applied more appropriately than to the nerve structures encountered during the course of herniorrhaphy.

5. The External Oblique Aponeurosis

Inguinal hernia, whether direct or indirect, occurs in the area of the inguinal triangle, bounded by the internal and external inguinal rings. It is quite astonishing, therefore, to observe the frequency with which the occasional operator is prone to open structures considerably beyond the limitations necessary for adequate exposure. Indeed, it is not uncommon to observe an incision extending almost to the anterior superior spine of the ilium. It cannot be denied that the aponeurotic layer of the external oblique separates easily and readily and may be incised with a certain degree of flourish, but the demonstration of surgical gymnastics does not justify the unnecessary entrance into virgin and uninvolved tissue. Opening the external oblique aponeurotic layer for more than a centimeter or two above the internal ring introduces three adverse factors into the process of the repair. (a) Primarily,

there is an increase in the amount of suture material necessary to close the wound. (b) Secondly, as the fascia is stripped open to a higher level, the blood supply is undoubtedly impaired . . . a fact which compromises subsequent healing. This aspect alone may be the deciding one between primary initial cure and ultimate recurrence in the view of many clinical surgeons. (c) Finally, the increased operating time required to open and close this unnecessary incision may account for as much as fifteen to twenty percent of the total period that the patient is in the operating pavilion and under anesthesia. Surgical intelligence does not condone this unwarranted increase in operative stress and risk.

6. Transversalis Fascia

The key to successful repair of inguinal hernia, with the exception of those in infancy and childhood, lies in the identification and utilization of the transversalis fascia. The structure is not always easy to identify, for its fibers are often thinned and frayed and not uncommonly covered by a loose layer of areolar tissue or densely adherent cremasteric muscle. Characteristically, the transversalis is pale and glistening; although manipulation produces a pink and muscle colored tone which becomes difficult to isolate from the surrounding structures.

It is not uncommon, therefore, to observe some operators confidently placing sutures through the loose adventitial fibers anterior to the true transversalis, hoping that this layer will serve as the reparative wall of Hesselbach's triangle. Such a mistake is especially likely to occur at the level of the internal inguinal ring as an attempt to reduce the size of its opening.

It is not of great importance which technic of herniorrhaphy it utilized, but it is essential that the reparative sutures are placed through firm fascial structures if recurrence is to be avoided. The few moments of extra time expended at this stage of the operative procedure to explore and dissect out the internal ring are well spent. Placing the index finger into the internal opening and directing it in a medial di-

rection delineates the semi-lunar edge of the transversalis fascia and determines the degree of its incompetence. With the finger still in place, sutures are easily introduced at the proper position and depth, and a correct, snug closure may be obtained.

7. Pubic Tubercle

At the medial apex of Hesselbach's triangle lies the pubic tubercle, a structure readily identifiable and serving as the landmark in the entire orientation of the inguinal anatomy. The ease with which this bony prominence may be palpated has undoubtedly served to justify a commonly demonstrated surgical error. As the transversalis fascia is imbricated to Poupart's or Cooper's ligament at the medial aspect of the inguinal triangle, the surgeon often passes his suture through the pubic periosteum. This may be done either deliberately as a means of "anchoring" the repair, or inadvertently by passing a needle too deeply at this level. Reinforcing the closure by such a means is of no value whatsoever for the tough fascial layers inserting on the tubercle approximate very well and need no further stability. The resulting periosteitis, however, that frequently occurs after such manipulation of this delicate structure, often remains a source of distress or disability for many weeks or months following the surgery.

8. Scarpa's Fascia

The tela subcutanea (Scarpa's fascia) envelops the entire anterior and lateral abdominal wall, but is best developed in the inguinal areas.

This structure is more pronounced in children, where the layer is often mistaken for the external oblique aponeurosis.

The sturdy nature of Scarpa's fascia over the external inguinal ring offers an added means of attaining a more comfortable repair. While there may be some difference of opinion regarding the value of approximating the fatty subcutaneous tissue in the closure of higher abdominal incisions, careful suturing of Scarpa's fascia should be considered an integral

step in herniorrhaphy. As several types of hernia repair advocate the transplantation of the spermatic cord to a more superficial level beneath the skin, the added protection of a firm fascial layer in continuity, anterior to the cord, is of considerable importance. Failure to restore properly the tela subcutanea often results in a thinned and depressed subtegumentary layer at the very point where protection is most desirable.

This important step in inguinal herniorrhaphy is often disregarded, despite the fact that incorporating it into the routine procedure may mean the eventual difference between a comfortable and an uncomfortable healed incision.

9. Skin Closure

It is difficult, indeed, to appreciate how a surgeon possessing adequate maturity and appropriate experience to undertake an inguinal hernia repair will frequently flounder at the final and least difficult stage of the operation. Yet, the improper closure of the skin edges is a commonly observed breach in operative technic.

The exact method or material used in closure is not important. Clean, primary healing does not depend upon whether metal clips, interrupted sutures, or a continuous strand are utilized, but upon the manner in which any of these methods is applied. Tight, strangulating stitches which blanch and wrinkle the skin edges invariably cut through the superficial layers in a short time, creating an ideal environment for abscess and infection. A painful, distressing, slowly healing wound is the natural result. This basic surgical principle is true in any wound, but it is especially important in the groin areas, the very place where it is most

commonly violated. Unavoidable traumatic fat necrosis and surgical manipulation cause considerable wound edema early in the postoperative period. Sutures which may appear to be quite loose at the time of closure are found to be snug and tight within twenty-four hours, and are often buried beyond identification after they have been in place for seven days. Gentle, patient closure of the skin edges must be accepted as a basic part of the routine closure of the herniorrhaphy incision. Unfortunately, this is frequently not the case.

10. Scrotal Support

Although not actually a part of the operative procedure, the utilization of testicular support immediately following surgery is of immeasurable comfort to a great many patients during the convalescent period. This is especially helpful for those elderly people in whom a large indirect, scrotal, or sliding hernia has been repaired. The dissection required to repair a hernia of these types is almost always followed by marked edema and, not infrequently, hematoma of the spermatic cord and peri-testicular tissue.

Long-standing inguinal hernia is often associated with varicocele, and the proper tight closure of the internal ring usually results in considerable temporary venous congestion distal to this point.

A snug, cotton scrotal support, applied prior to the postoperative ambulation, not only is extremely comforting to the patient, but also productive of more rapid dissolution of edema and congestion. There is no indication for routine application of this type of postoperative support, but in those selective patients previously mentioned, its utilization is of extreme value.

Summary

This paper is written in an attempt to draw attention to ten general points, independent of the specific requirements for the anatomical closure of the defect, which are often forgotten or overlooked, but which are of vital impor-

tance to the overall surgical correction of this disease.

A high percentage of the inguinal hernia repairs undertaken in this country are done by the young surgeon during his period of training

or by the busy general practitioner qualified to carry out this surgical procedure. Experience has shown that while each of these groups is well versed in the anatomical and technical aspects of the several methods of repair, the refinements of technic are often overlooked. Such

neglect usually results in a patient whose hernia is adequately eliminated, but whose convalescence may be prolonged or extremely distressing.

Many of these people suffer residual difficulties over a long period of time.

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ZINC METABOLISM IN HEPATIC DYSFUNCTION

"Marked abnormalities of zinc metabolism are demonstrated in patients suffering from postalcoholic cirrhosis. Zinc concentrations in serum and in the liver tissue of such persons are markedly lowered. Simultaneously, these patients excrete abnormally large quantities of zinc in their urine; a terminal patient, however, excreted abnormally low quantities of zinc. The administration of zinc sulfate in physiologic quantities tends to restore normal excretory patterns. The bromsulfalein retention in five patients with postalcoholic cirrhosis tended toward normal in the course of these investigations on zinc metabolism. No attempts at specific therapy of the disease were undertaken.

The data are interpreted in the light of the comparative biochemistry of zinc and ethanol metabolism. A conditioned zinc deficiency is conjectured to be consistent with the present data and the known historical, pathophysiologic and pathobiochemical knowledge of this disease."

BERT L. VALLEE, WARREN E. C. WACKER, ANTHONY F. BARTHOLOMAY, and FREDERIC L. HOCH
Annals of Ind. Med. (1959) Vol. 50, No. 5, P. 1089.

ALCOHOL

and its Effects on Man

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How can anything which tastes so good, and is imbibed so frequently, be so deadly? The answer is simple: drinking too much in too short a time or by drinking under an inappropriate set of circumstances.

Too much whiskey or other alcoholic beverages kill more people annually by acute alcoholism than any other single poison. The following table illustrates the magnitude of this in comparison with the two next frequently occurring poisons, carbon monoxide and barbiturate derivatives.

Drinking under inappropriate circumstances is best illustrated by the fact that about two out of every five deaths on the highway are associated with drinking and also, about fifty percent of adult accidents at home can also be attributed to drinking.

Alcoholic beverages, as we know them, occur in various types and in various strengths. The commonly used expression is "proof" which is numerically twice the percent value. For example an 86 proof whiskey is 43 percent and a 100 proof whiskey is 50 percent alcohol by volume. And the various types are:

Beer	2% to 5%
Wines	7% to 12%
Fortified wines	15% to 20%
Distillates such as: whiskey, rye, bourbon, corn, rum, gin, brandy, scotch	40% to 50%

Alcohol and its effects on the human system have been known for a long time. Even during his earliest history, man in the attempt to make his existence more tolerable, soon learned that the fermentation of certain fruit or vegetable juices resulted in a drink that made him feel indifferent to his immediate problems. It was also observed that the degree of indifference produced depended upon the quantity imbibed, up to a point of complete indifference (coma). It was much later in civilization that man isolated and identified the active ingredient of this drink as ethyl alcohol.

From the Office of the Chief Medical Examiner, Department of Health, Commonwealth of Virginia.

DEATHS DUE TO ALCOHOL, CARBON MONOXIDE AND BARBITURATES IN VIRGINIA*

YEAR	ALCOHOL	CARBON MONOXIDE	BARBITURATE DERIVATIVES
1952	68	30	17
1953	61	27	18
1954	70	36	11
1955	75	38	14
1956	85	48	21
1957	84	46	18
1958	97	45	12
1959	100	52	12

* Annual Reports of the Office of the Chief Medical Examiner, Commonwealth of Virginia, 1952-1959.

Ethyl alcohol is isolated by fractional distillation; it is a colorless, volatile, pleasant smelling aromatic liquid with the chemical formula C_2H_5OH . It is formed from the fermentation of certain carbohydrates (sugars) in grains, fruits, or flowers, and also synthetically from ethylene gas or ethyl sulfate.

Absorption

Alcohol is basically a central nervous system depressant, acting generally in a manner similar to anesthetics such as ether and chloroform. It requires no digestion, and absorption occurs apparently by simple diffusion from the stomach and intestines into the blood stream. This diffusion is so rapid that from eighty to ninety percent of the ingested quantity may be absorbed in thirty minutes, although complete absorption may require approximately two hours. About twenty percent is absorbed from the stomach and the remainder from the small intestine. A delay in gastric emptying time is a most important factor in slowing the rate of absorption. Largely because of this, the speed of absorption may vary among individuals and even in the same individual at different times and circumstances. Ordinarily the most important factor in delaying absorption is the presence of food (any food); carbohydrates and proteins being equally or possibly more effective than fats in this respect. The concentration and nature of the alcoholic beverage are also influencing factors; for instance, the alcohol in beer is more slowly absorbed than

that in an equal concentration in water. A "highball" type of drink diluted is rapidly absorbed and the soda water (CO_2) even hastens this. The more concentrated "on the rocks" drinks are more slowly absorbed.

Rate (Metabolism and Elimination)

Approximately ninety-five percent of the alcohol absorbed is completely oxidized to carbon dioxide and water. The initial stage of this metabolism begins in the liver, hence the possible effect of liver disease on the intensity of the alcohol activity and effect. The remaining five percent is eliminated unchanged chiefly by the lungs and kidneys. Normally, the body destroys and eliminates alcohol at a rate equivalent to about $\frac{3}{4}$ ounce of whiskey per hour. In terms of changes in the blood-alcohol percentage, this corresponds to a decrease of approximately 0.02 percent per hour.

Action

The signs and symptoms of ethyl alcohol intoxication are fairly typical and are generally characterized by a release from the usual restraints and inhibitions. As a result, there is the appearance, initially at least, of stimulation; actually, this is pseudo-stimulation. Depending on the amount taken, there is a sense of security, feeling of being a "superman," a "nothing-matters-plenty-of-time" attitude, hilarity and boisterousness. Acts as a social lubricant; shyness disappears, conscience, conformity and social restraints are blunted and *one's true inner self* may now be revealed. Judgment, reflexes, vision, mental efficiency and muscle coordination suffer. There is analgesia, mental confusion, impulsive behavior, clumsiness, slow and sluggish thinking, decreased efficiency in responding to emergency situations and inability to perform simple tasks with normal speed and accuracy.

Other findings may be nausea, vomiting, vertigo, characteristic odor on the breath, warm inner glow, slurred speech, dilated pupils, flushed face, sweating, impaired reflexes, poor motor coordination, unsteady gait, poor judgment, loquaciousness, sleepiness, diuresis, weak

rapid pulse, cerebral edema, dyspnea, cyanosis, mild acidosis, circulatory collapse, coma, respiratory failure, and even death.

The pathologic findings in fatal cases of acute alcoholism are not characteristic nor striking except, perhaps for an alcoholic odor of the tissues typical of the beverage. It is therefore, difficult to make a diagnosis of acute alcoholism without an adequate history and postmortem toxicologic study.

Good or Bad?

The use of alcoholic beverages has become very popular through the years; they are pleasant to taste and, furthermore, provide the individual with a feeling of well being. It is with reason that Osler called it the "milk of old age," and others, "the liquid of life." It lessens the bitterness of memories, and low spirits, and can summon sleep. It stimulates appetite and is good for digestion and may even lengthen life if handled prudently. But, over indulgence has created a serious problem for society. In certain situations, it becomes a medico-legal problem, it being of utmost importance in some cases to be able to determine to what extent, if any, a person was under the influence of alcohol before such a case can be closed. The determination of ethyl alcohol concentration in body tissues has, thus, become the most frequently requested test in a forensic-toxicology laboratory, particularly during the past twenty-five years. Six thousand or more of these tests are performed yearly in my laboratory on the problem of the "drunk driver." Also, in many deaths which come under the inquiry or jurisdiction of a medical examiner (in Virginia), a blood alcohol determination is done. As a result of this routine operating procedure the true cause, manner, and nature of death has been later established in several cases, to be quite different than what was originally suspected.

A "chemical yardstick" such as a blood-alcohol level can, then, be a reliable and valuable means in determining whether:

- (1) An individual has intoxicating levels of

alcohol in his system or whether, the signs and symptoms manifested were due to disease or injury such as diabetes, Menière's disease, (poor equilibrium) brain damage, etc.

- (2) Alcohol was the direct or indirect cause of death.

- (a) Directly due to depression of the central nervous system produced by massive dosage. Excessive quantities (about one quart) taken within a relatively short interval of time will produce death.

- (b) Indirectly: producing liver damage; aggravating a preexisting disease; prone to aspiration, infection, or exposure to extreme weather; prone to violent death resulting from brawls, foolhardy stunts, or accidents. Lack of ability to resist assault, or failure to respond to an emergency situation because of decreased efficiency and impairment of judgment.

- (3) The individual was under the influence of alcohol sufficiently so as to impair his proper operation of a motor vehicle, within the meaning of a particular existing law of the community.

Tests

Many procedures have been suggested and are in use today for the determination of alcohol in blood or tissues. Fundamentally these are based usually upon the same chemical reaction described by M. Nicloux in 1900. Very little has been added to this reaction, except that many workers have modified and improved the technic, apparatus, sequence of isolation, and method of reading the final color. If properly performed, any of these tests are reliable.

More recently enzyme reactions involving alcoholic dehydrogenase have been devised and used to great advantage.

Possible Interference to Tests¹

1. Methyl or isopropyl alcohol or formaldehyde may give a similar positive test and

should be ruled out either by specific analysis or history.

2. Chloroform, ether, chloral hydrate or paraldehyde *do not* appear in the human blood in sufficient amount even in extreme situations so as to present an interference.

3. Acetone bodies even in the most severe instances of diabetic acidosis and coma do not interfere with this test if precautions are taken.

4. However, if the blood or tissue is markedly decomposed, the specimen is unsuited for an accurate determination.

5. Swabbing the arm with alcohol before venipuncture should be avoided since it always poses an important question of contamination. However, in a recent survey by us a series of one hundred blood specimens was taken at random at different times from a hospital laboratory. These bloods were collected in the usual manner (alcohol swabbing of the arm), for routine blood chemistry. Alcohol determinations were performed and in each specimen, the alcohol level was negative.

This small series, although negative, does not justify the use of alcohol since one cannot rule out the possibility of error in all cases, furthermore it is neither morally nor scientifically right.

Other substitutes for alcohol, such as soap and water, or any non alcoholic antiseptic is preferable.

Evaluation of Conditions and Interpretation of Results

Since analytical results have to be properly evaluated so that reliable conclusions may be drawn, the following factors are also a serious consideration.

I. Influence of freshness or decomposition of specimen. Effectiveness of preservatives.

II. Importance of analyzing the proper specimen; relative distribution of alcohol between the body fluids and tissues.

III. Possible toxic action in humans of low sub-lethal levels of alcohol in the presence of other synergistic drugs.

IV. Rate of blood-alcohol disappearance in man.

V. The terminal blood-alcohol levels likely to be found in fatal cases of acute alcoholism.

I. INFLUENCE OF FRESHNESS OR DECOMPOSITION OF SPECIMEN AND EFFECTIVENESS OF PRESERVATIVES. The ideal situation for the performance of an accurate alcohol determination requires that the analysis be done as soon as possible after death or after the collection of the specimen. This is not always possible. Since on some occasions, the body may not be found until several days after death or it may take several days to deliver the specimen to the laboratory because of distance. However, a delay in analysis may produce inaccurate results due to products of putrefaction such as aldehydes, phenols, ketones, hydrogen sulfides, volatile amines and even alcohol itself.

If the body is in a *marked* degree of putrefaction, it is impossible to be certain of the reliability of the results even when one takes all precautions in analysis. If the body is in a *mild* degree of putrefaction, one may obtain a fair estimate of the true original levels; again, this depends upon the products of putrefaction which may interfere. These products if present however, in only small amounts may be inhibited by taking special precautions.

If the body had been *embalmed*, the presence of large or moderate amounts of formaldehyde, render it unsuited for an accurate analysis. On the other hand, if only a *small amount* (trace) of formaldehyde is present, a comparative analysis may be made and a fair estimate of the amount of ethyl alcohol may be computed by differences between the total result and the amount of formaldehyde present.

It is, therefore, most desirable for the specimen to be fresh. If it is necessary to deliver or mail specimens to a laboratory a distance away, the specimen must be refrigerated with dry ice or by some other practical means, such as a chemical preservative. The use of sodium fluoride has been found to be especially effective for this purpose. When using 200 mg. of sodium fluoride in 10 ml.

of blood, it will act as both an anticoagulant and a preservative, and a true alcohol level may still be determined months later even when the specimen is kept at room temperature (25 to 30°).²

II. DISTRIBUTION OF ALCOHOL BETWEEN THE BODY FLUIDS AND TISSUES. Since it is not always possible to obtain tissues of choice for an alcohol determination, (because of circumstances), it is therefore important to know the alcohol distribution in the various tissues and fluids, and their relationship to blood.

This study has been performed by the writer³ and others on blood, urine, spinal fluid, brain, liver, and serum. In our cases, each was performed on the same decedent, and each then compared with blood.

It has been established that the blood alcohol concentration relationship *does vary* with urine, spinal fluid, brain, liver, or serum and cannot and should *not be used interchangeably*.

However, in contrast to urine, the spinal fluid, brain, liver or serum alcohol levels are in a relative constant ratio with the blood-alcohol concentrations.

Blood-alcohol levels are always higher than liver or brain, and this ratio is approximately, *Blood: liver or brain=3:2*.

Blood-alcohol levels are always lower than spinal fluid or serum, and this ratio is approximately, *Blood: spinal fluid or serum=4:5*.

The blood-alcohol concentration of a particular individual may then be fairly closely computed from the concentration in the liver, brain, spinal fluid or serum by use of a factor.

Urine-alcohol level is often found to be *higher* than the blood-alcohol and the approximate ratio is *Blood:urine 4:5*. However, the *reverse* may also take place if an individual dies while still in the absorptive stage. Two such recent cases help illustrate this. Both decedents died within approximately one to two hours after onset of coma from acute alcoholism.

(a) Blood:	0.48% alcohol
Urine:	0.35% alcohol
Gastric Contents:	0.56% alcohol
(b) Blood:	0.50% alcohol
Urine	0.26% alcohol
Gastric Contents:	0.50% alcohol

A random sample of urine obtained at *autopsy* is not the most satisfactory specimen for an accurate correlation of conversion to the blood-alcohol level, because of too many uncontrolled variables.

The determination of alcohol levels in urine has come into fairly common use because of the ease with which a specimen can be obtained from living subjects in contrast to a blood sample which required special equipment and trained personnel. This is in spite of the fact that there has been a constant controversy as to the reliability of computing the blood-alcohol level from the urine determination.

The computation of an average blood-urine ratio can be unreliable even where it is done under ideal conditions. One case was reported in which an individual under controlled conditions, ingested six "highballs" during a period of two hours. Precautions were taken to have him empty the bladder just prior to the last drink, and specimens of urine and blood were collected thirty minutes later. The blood-alcohol level was found to be 0.18 percent while the urine-alcohol level was 0.14 percent.⁴

If one were to use the recommended factor of 4:5 to compute the blood-alcohol level from the urine value obtained, the result would have been 0.11 percent, where the actual determination in this case showed it to be 0.18 percent.

Because of the possible wide variations from a mean average, (either higher or lower), urine alcohol values by themselves are useless for medico-legal purposes.

The variations encountered in the relationship between the alcohol level in blood and urine in living subjects may depend upon:

- (1) The amount of urine present in the bladder at the time of ingestion of alcohol.
- (2) The frequency of micturition between ingestion of alcohol and collection of specimen.
- (3) Whether the individual is still absorbing

BREATH TESTS

On some occasions it is impossible to obtain blood, in questions of "drunk driving," to determine whether one is sufficiently under the influence of alcohol to impair his proper operation of a motor vehicle. Under these circumstances, the analysis of breath has proven very satisfactory when performed by those persons with special training. Blood-alcohol levels and determinations by breath are in close agreement.

Special apparatus have been set-up for this analysis. The more popularly known are the Drunkometer, Intoximeter, and the Alcometer. The rapidity of the test, and being able to perform it at the scene, has been of great help to both police and accused motorist.

alcohol from the gastrointestinal tract at the time that the specimen is collected.

(4) The possible permeability of the bladder to alcohol. Moritz and Jetter believe that alcohol may pass into the bladder by way of the mucosa if the concentration of alcohol in the urine is lower than in the blood and in the same way pass from the urine into the blood if the blood level is disproportionately lower.

(5) The possible influence of the specific gravity of urine. Jetter and Haggard and Greenberg believe that an elevated urine density tends to lower the urine-blood alcohol ratio.

If difficulties are encountered with the *living* in obtaining a constant ratio which can be used as a reliable computing factor, even greater difficulties may be encountered when one is dealing with *autopsy cases* where control of conditions cannot be exercised.³

III. POSSIBLE SYNERGISTIC ACTION IN THE PRESENCE OF OTHER DRUGS. When several drugs are given together, each may act independently as if alone. The result would then be a simple algebraic summation of the effects which may be negative or positive. Negative summation is termed antagonism. The stimulants and depressants of the central nervous system are examples of antagonistic

groups of drugs when used together. Most drugs producing the same type of response have at least an additive action when administered together. In some cases, the combined action may even produce a potentiating (more than an algebraic summation) effect. This is of great importance, especially when alcohol is used in addition to other drugs.

The effects of alcohol depression on humans is *significantly increased* in the presence of strong depressant drugs such as morphine and all other related drugs (codeine, heroin, Dionin,[®] Dilaudid,[®] Demerol[®], Methadone[®], etc.); additive with chloral hydrate, barbiturate derivatives, and even with the milder drugs such as paraldehyde³ or the now popular tranquilizers.

This possibility of the coexistence of other depressant drugs should be taken into account in questions of alcohol and its effects on man.

IV. RATE OF ELIMINATION OF ALCOHOL FROM BLOOD. The primary site of initial ethyl alcohol metabolism is in the liver. This process accounts for the destruction of approximately ninety-five percent of the alcohol circulating in the blood. The remaining five percent is removed unchanged mainly by the lungs and kidneys.

Since usually it is not possible to obtain blood specimens at a specific time such as at the moment of accident, arrest, or peak blood-alcohol level prior to death, the rate at which the blood level is lowered may be of great importance. After reaching a maximum, the blood alcohol level decreases at an approximate rate of 0.02 gms. percent per hour. For example, if the blood specimen were drawn two hours later in the hospital, it would now be about 0.04 gms. percent less than it was at the time of the accident, (provided that one didn't drink all the whiskey just a very short time before the accident).

V. TERMINAL BLOOD-ALCOHOL LEVELS FOUND IN FATAL HUMAN CASES OF ACUTE ALCOHOLISM. Very little has been described or written about the terminal blood-alcohol

levels that may be found in death due to uncomplicated acute alcoholism. This information may be of great assistance in ruling in or ruling out the possible role of alcohol in questionable deaths.

In the past, it has been generally accepted that when the blood-alcohol level is 0.45 percent or above, and in the absence of other findings, the diagnosis of death from acute alcoholism may be made.

It is generally agreed that drinking in excess of a quart of whiskey within a short period of time can have a fatal effect for an average one hundred and sixty pound individual, and if death occurs within one to three hours, the blood-alcohol level will be high (approximately 0.45 percent or above). But, most alcohol deaths do not occur in less than five hours after the last ingestion or the onset of coma. Very few die suddenly. According to the usual history of the decedent, the interval usually ranges from about five to twelve or more hours after the onset of coma. During this interval, the alcohol is subjected to biologic modification and may be destroyed in significant amounts before death.

As indicated previously, the alcohol level of the average adult will decrease at about the rate of 0.02 percent per hour. If one were to survive, for example, eight hours after the highest peak and later succumb, his blood-alcohol level at death would be about 0.16 percent lower than some previous level.

The blood-alcohol level does not vary after death, providing putrefaction has not set in, nor does it represent the peak reached at some previous time. Perhaps, death occurs a number of hours after the peak has been passed because of respiratory paralysis following a profound depression of this mechanism in a manner comparable to that produced by carbon monoxide or barbiturates.

It is therefore not unusual to find relatively low blood-alcohol levels in uncomplicated cases of acute alcoholism. These values would vary inversely with the length of time of survival of the patient since his last drink or onset of coma; that is, the longer the period of

survival, the lower the terminal blood-alcohol values.⁶

Popular Fallacies

(1) *Alcohol may act as an aphrodisiac:* This actually is not so. It may accent the desire "by lack of inhibitions," whereas it may also inhibit the performance.

(2) *Good method to keep warm on a very cold day:* This practice is actually dangerous. Alcohol may produce a dilatation of peripheral blood vessels in the skin which will increase perspiration and heat loss. This may give a rapid transient feeling of warmth, when actually the body is rapidly losing heat. Furthermore, large amounts of alcohol depress the heat regulatory centers, and heat production by the body may now be impaired.

(3) *Mixing alcoholic drinks such as whiskey, beer or gin produces a marked potentiation of action:* This is not so. It may make one sick, but not more intoxicated other than in proportion to the amount of alcohol taken. This depends solely upon the amount of alcohol regardless of type of drink.

(4) *After an overindulgence of champagne and upon drinking water the next morning, one again may become intoxicated:* This is not true. One may get sick, but cannot again become under the influence of alcohol (or intoxicated), without the actual presence of alcohol.

(5) *A small amount of alcohol may improve driving abilities:* This is not true because alcohol is a depressant, drinking to any extent reduces self control and reduces the driving ability of any driver. The social drinkers are a greater menace than is commonly believed, since their critical judgement, and reflexes are impaired even with a fairly low alcohol level; and they outnumber the obviously intoxicated drivers. You do not have to be obviously intoxicated to be "under the influence" and an unsafe driver. "Under the influence" means that due to drinking alcohol, one has lost to some degree the ability to respond to an emergency situation, because of some loss in judgement, clearness of mind, self control, reflexes, and muscular

coordination. Also, two ounces of whiskey may reduce visual acuity as much as wearing dark sun glasses at night.

It is a sad note, that two out of five fatalities on the highway are due in part to drinking whiskey.

Approximation of Alcoholic Beverages to Reach Given Blood-Level⁶

A 12 ounce bottle of beer (4%) contains approximately the same alcohol content as 1 ounce of whiskey (100 proof). For an average 160 pound individual tested within 30-45 minutes after drinking, a *minimum* of:

- 2 ounces whiskey=0.05% alcohol in blood.
- 4 ounces whiskey=0.10% alcohol in blood.
- 6 ounces whiskey=0.15% alcohol in blood.
- 8 ounces whiskey (½ pint)=0.20% alcohol in blood.

Interpretation of Blood-Alcohol Values

(Largely from National Safety Council Memo No. 29)

Less than 0.05% = prima facie evidence that the subject *is not* under the influence of alcohol.

0.05% - 0.15% = corroborative evidence to be considered with outward physical symptoms. In general, the nearer the level of 0.15% is approached, the more likely the subject is of being under the influence of alcohol.

0.15% and above = prima facie evidence that the subject *is* under the influence of alcohol insofar as the operation of a motor vehicle is concerned.

0.25% and above = the subject is markedly intoxicated.

0.40% and above = comatose levels of alcohol which may lead to death.

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The Prophylactic Use of **ANTIBIOTICS**

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DR. LONG: Well, let's go on with the question of gastro-intestinal infection. Can you think of any gastro-intestinal infection in which you might want to use an antibiotic as a prophylactic agent, Dr. Rogers?

DR. ROGERS: The only ones that come to mind to me are again epidemic situations. I think during an outbreak of *Shigella* dysentery in a closed military population, it has been shown that you can promptly abort the epidemic and prevent further disease by giving all the troops sulfadiazine, but I would stress that these are data on a single infection in a very special epidemic situation. This is the only one which I am aware of where I would use prophylaxis.

DR. LONG: What is your feeling about that Dr. Austrian?

DR. AUSTRIAN: I think the same. Certainly, one would not advise a traveler in poorly sanitized areas to be taking antibacterial drugs for prophylactic reasons. At least I wouldn't.

DR. ROGERS: I think there have been clear studies to make perfectly clear that much of the diarrhea of travelers is not bacterial in origin.

DR. AUSTRIAN: It is caused frequently by staphylococcal enterotoxin.

DR. LONG: If you were in a foreign environment where hunger was rampant, social conditions had broken down, and you were in charge of a large group of American soldiers, would you recommend giving them prophylaxis for venereal disease every time that they said that they had had an exposure? Or let me put it another way, suppose you were administering a policy of controlled prostitution, as I did in North Africa for about four months in World War II, would you give prostitutes continuous penicillin therapy by intramuscular injection for the prophylaxis of venereal disease?

DR. ROGERS: Are we going to make this a medical matter or a moral problem?

Held at the New York Academy of Medicine, 2 East 103 Street, New York 29, New York on April 10, 1959.

DR. LONG: This is purely a medical problem.

DR. ROGERS: I would give penicillin.

DR. LONG: This is a very interesting remark and we are not discussing the morals of it (that had been settled by the high command) or the morale of it, so I was just wondering what your point of view would be on it.

DR. ROGERS: Again, this is a very specific situation. I think that you can prevent gonorrhea in troops by the prophylactic administration of penicillin. I would be inclined to use it, and I think the same would apply to the prostitutes if I was in charge of administering a program of prostitution controlled by the military.

DR. LONG: What do you think, Dr. Austrian?

DR. AUSTRIAN: I would again agree with Dr. Rogers. We are dealing with *Treponema pallidum* and with *Neisseria* both of which organisms show very little tendency to develop resistance to penicillin. And one of the situations in which prophylaxis can operate effectively is that in which a specific drug is used for the eradication of a specific organism which has very little genetic potential for giving rise to resistant forms. That state of affairs obtains with regard to both of these organisms, so one would probably be able effectively to keep both the syphilis and gonorrhea rates at very low levels. Of course, there are other venereal disorders which are not influenced by penicillin which might become a cause for concern in the face of circumstances such as you anticipate.

DR. LONG: But I am interested in hearing what you say, while it is very difficult to find, there is very definite evidence from the point of view of both gonorrhea and syphilis that adequate types of prophylaxis can be established by the administration of penicillin either to the prostitute, or to the individual who has been in contact with infected prostitutes. You don't hear too much about it obviously, but it is a thing one should keep in mind because occasionally, one has to do something about it. Now to go on to the next topic which I have

on the list under the term of non-surgical infections, what would you think, Dr. Austrian about using either a sulfonamide or antibiotic, (a sulfonamide would be cheaper,) in the prophylaxis of urinary tract infections or let us say, the long continued treatment of one in a woman who had repeated attacks of urinary tract infection but who still has, as measured by phenolsulfonphthalein, or urea clearance, essentially normal renal function?

DR. AUSTRIAN: I should not be very hopeful about what could be achieved with either a sulfonamide or an antibiotic agent in such an individual. There are patients who have chronic bacteriuria and in whom the bacteriuria can be suppressed, partially at least, for apparently long periods of time by the administration of such a drug. There has been some evidence that, by altering the flora of the intestinal tract particularly by giving rather poorly absorbed sulfonamides, there may be a coincident diminution in the frequency of symptoms referable to the urinary tract. But, on the whole I would say the use of antibacterial drugs in the treatment of the individual with chronic, repeatedly occurring infections of the urinary tract has been very disappointing.

DR. LONG: What do you think, Dr. Rogers?

DR. ROGERS: I agree. It has been a very discouraging problem. We might add the patient who was getting catheterized or has an indwelling catheter to this group. These are situations where we know a high incidence of bacterial infection is going to occur, but we've been very discouraged with the prophylaxis in these situations. It merely means that the individual who develops infection doesn't develop an *E. coli* infection — he develops a *Pseudomonas*, or an *Aerobacter* infection.

DR. AUSTRIAN: I would add that you never prevent an infection in presence of an indwelling catheter with antibiotic therapy. If there is a foreign body present in the bladder; i.e., a catheter, and the technique of caring for it is not scrupulous, the individual will always become infected.

DR. LONG: Well, one of the reasons why I brought up this particular question is yester-

day, we had the great pleasure of having with us again Professor Max Rosenheim, who is Professor of Medicine at University College Hospital in London. As you know, Max Rosenheim is the individual who introduced mandelic acid into the therapy of urinary tract infections about 1935, and this same question was put to him yesterday. I was rather surprised that he came up with the statement that he thought people, women and other people who had long-standing urinary tract infections, should be treated for a year or even more to try to eliminate it, or using it as a prophylactic measure, and saying that some of them he found had not had recurrences of their urinary tract infections. But I don't think he had enough work yet with controls to make it absolutely certain.

DR. ROGERS: Dr. Long could I just interject something here, because again I would separate the prophylactic from the treatment situation. I think that we treat many urinary tract infections in a fairly cavalier fashion. As my own experience with these troublesome problems has increased, I have been inclined to treat these chronic urinary tract infections longer and longer and more and more vigorously. But this is a rather different situation than attempting to prevent infection in the patient who has recurrent disease because of some anatomic abnormality.

DR. LONG: Dr. Rogers, I forgot something as I got down a little farther on my list and found I hadn't asked this. Under what condition other than really incipient or almost present so-called and I hate these two words—hepatic coma, I would hate to think of my liver being comatose, but I guess that it is when you have hepatic coma, would you use, let us say, neomycin or a similar antibiotic? Would you give it if the patient could afford it and had very definite cirrhosis of the liver? Would you give it five or six grams a day almost continuously, or would you wait until the patient had incipient coma?

DR. ROGERS: This I realize is a problem I have not considered as a prophylactic one. I can tell you what my practice has been, I

treat the patient in incipient coma. I think we are using drugs quite differently here. There is suggestive evidence that some of the bacterial end products absorbed from the gastrointestinal tract are not properly handled in the liver, and that this accentuates the problem of the liver disease. I don't however think that you can permanently sterilize the gastrointestinal tract, so I am inclined to use drugs in situations of crisis where I am attempting to reduce the load on the liver, I do not believe I can perpetuate a sterile gut that will benefit him over a long period of time.

DR. LONG: Would that be your opinion?

DR. AUSTRIAN: Yes, because I think it has been shown, wherever it has been studied, that one can only produce temporary changes or transient changes in the intestinal flora. Ultimately, resistant mutants develop or drug sensitive bacteria are replaced by other organisms.

DR. LONG: Have you ever had any experiences using either an antibiotic or a sulfonamide in the prophylaxis of an outbreak of meningitis?

DR. AUSTRIAN: No first hand experience.

DR. LONG: What would you do if you had an Army camp let us say, or an institution in which meningococcal meningitis was breaking out, what would you do, which would you use, penicillin or would you use sulfadiazine?

DR. AUSTRIAN: I think I would use the sulfonamide. I would prefer to run the risk of the reactions to sulfonamides rather than that of sensitizing some members of a large population to penicillin.

DR. LONG: Would that be your feeling?

DR. ROGERS: Yes, that would be my feeling too. It seems to me it's a good illustration of where our terms bacteriostatic and bactericidal break down. For example, I think sulfadiazine is a magnificently bactericidal drug in treatment of a patient with meningococcal disease. I think it is actually a better drug to use than penicillin. I think there is some evidence that these patients do better on sulfadiazine than on penicillin, although perhaps Dr. Austrian will argue with that.

DR. AUSTRIAN: Here we will disagree!

DR. ROGERS: Good!

DR. AUSTRIAN: Our experience with penicillin has indicated it has been equally satisfactory, and we haven't treated meningococcal meningitis with any sulfonamide at all in the last six years.

DR. ROGERS: Really, well that's very interesting!

DR. LONG: Dr. Austrian, I would like to ask you one final question on these non-surgical types of prophylaxis. What's your feeling about patients who are receiving steroids?

DR. AUSTRIAN: Again, I think that if one is attempting to prevent a specific infection, one may be successful. In other words, if you have an individual with disseminated lupus erythematosus in whom you are concerned about the reactivation of tuberculosis and in whom you have seen evidence of previous tuberculous infection in x-rays of the chest, therapy directed specifically toward the prophylaxis of tuberculosis will be effective. However, one again will encounter failure in attempting to prevent all types of infection, and one of the things that has been noted with increasing frequency in individuals who get steroids and prophylactic antibiotics has been the development of systemic fungal infection, particularly by species of fungi which are normally considered to be saprophytic and of low pathogenicity. So again, when prophylaxis is directed toward a specific end, it may be successful but when it is used as "an umbrella," it is much more likely to fail.

DR. LONG: Is that your feeling also, Dr. Rogers?

DR. ROGERS: Yes it is.

DR. LONG: Well now, none of us is a surgeon and I was very lucky, I didn't know quite how we were going to get around the surgical aspects of our problems, but I was very lucky the night before last getting the new issue of *Surgery, Gynecology and Obstetrics* and finding as a lead article a paper by a Col. E. J. Pulaski, who in my mind, along with Dr. Altmeier at the University of Cincinnati, are probably the leading surgeons in the country interested in the subject of surgical infections

and what can be done about them. Now that Frank Meleny has retired but this I should say Frank hasn't retired from the lists yet by any matter of means. I get a reprint every now and then from him from Florida, so they must be having infections in Florida, but here is what Col. Pulaski says, in this paper on discriminate antibiotic prophylaxis in elective surgery. He argues against routine prophylaxis as the proof of effectiveness is lacking. The widespread use of prophylaxis is wasteful. It condones laxity in practice of good surgery. It causes unnecessary risk of side effects. It encourages the development of resistant bacterial strains. There are certain limiting factors in antibiotic prophylaxis. It must be instituted early in the absence of bacterial data. No single antibiotic is universally effective. Barrier at wound borders prevents bacterial and antibiotic contact. Wound environment may inhibit effectiveness. Bacteria may inhibit or inactivate the antibiotic as happens with penicillinase and penicillin. And then there are hazards from indiscriminate antibiotic prophylaxis. Among them are, laxity in the practice of good aseptic techniques and prevention of cross infections, drug sensitization and anaphylactic reactions, direct drug toxicity, superinfections with drug resistant strains and delayed diagnosis from the masking of infection. And then Colonel Pulaski goes on to talk about when you may use discriminate antibiotic prophylaxis in elective surgery. And he starts out, First: In surgery about the head and neck. In certain operations involving the oral cavity. Radical surgery involving fungating carcinoma of oral cavity or neck. Esophageal diverticula. Second: In the thorax. Where the presence of infection in the lesion cannot be ruled out pre-operatively. In surgery extending across potentially infected lung, tissue mediastinal structures, or the esophagus. In bronchopleural or tracheal esophageal fistula. In cardiac and vascular surgery when risk of superinfection is high. Third: In abdominal surgery. Transduodenal choledocholithotomy. (I never can say that.) In repair of bile ducts. When doing portocaval shunts in patients who have im-

pending coma. In operating on pancreatic or enteric fistula, in colonic resection for inflammatory disease, in strangulation, obstruction, perforation, carcinoma of the bowel and after spillage of fecal material during an anastomosis. During the closure of colostomy. In anoplasty with primary closure. After evisceration from a laparotomy wound. Fourth. In certain obstetric and gynecologic operations, such as, premature rupture of membranes in patients with renal or valvular heart disease. In prolonged labor if the uterus is invaded for the removal of placenta or membranes. In rectovaginal, or vesicovaginal fistula. In vaginal hysterectomy with soiling. In pelvic organ exenteration. In repairs of cystocele or urethrocele. To prevent ascending infection. Fifth: In genitourinary surgery with presence of severe urinary tract infection. When valvular heart disease is present. In extreme debilitation. In contamination of dead space. When there is postoperative extravasation of urine. In ureteroplasty and transplantation of ureters. Sixth. In orthopedic surgery such as open reduction and internal fixation with or without bone grafting of major long bones of the body. In intra-articular surgery associated with trauma or reconstructive surgery. In the debridement of major wounds associated with crushing or open fractures. To guard against systemic infections by hematogenous spread during the primary phase of bone healing when the patient is exposed to surgical procedures associated with transitory bacteremia which may be associated with dental procedures. In treatment of infected cervix, of infected toenails, of skin diseases. That's volume 108, No. 4, page 388, April 1959 of *Surgery, Gynecology and Obstetrics*. Would you like to comment on that, Dr. Rogers?

DR. ROGERS: I realize I would take issue with Colonel Pulaski's use of terms here. I have very little argument about what he has to say about the situations in which he would use antimicrobial drugs. I would point out to you, however, that each of these are situations where infection is present. In other words, he has listed the situations in which infection is

already present and may compromise his surgical result.

DR. LONG: Or infectious material.

DR. ROGERS: Or infectious material. Consequently, I think this is a very different problem than the use of drugs prophylactically—that is to prevent infection from arising. One knows infection is present, for example, in a bronchopleural fistula or in extravasation of urine into dead space. It makes good sense to me to start as of that moment and treat infection very vigorously with the hope that you are not going to destroy your operative procedure with infection. This is a very different situation from using drugs to prevent infection from arising. I think there is solid evidence in suggesting that you do not *prevent* infections in surgical situations by using drugs. There is overwhelming evidence that you can very effectively *treat* infection when it arises and consequently surgery has been broadened greatly. For example, surgery in the infected lung now can be done because you can prevent infection from destroying your operative result. But that is very different from a situation of using drugs prophylactically.

DR. LONG: What is your opinion, Dr. Austrian?

DR. AUSTRIAN: I would agree. Antibacterial prophylaxis is not a substitute for asepsis. Secondly, when one deals with situations such as those described, one should always avail himself of the services of a bacteriologist. It is very important to get cultures when you are doing surgery in infected areas, and to direct therapy specifically against the organisms which are isolated. In other words, one cannot merely start with the assumption that the area is infected and draw from the medicine chest the optimum therapeutic agents to employ in each situation. This is a circumstance which calls for additional knowledge which can be obtained only from the use of the bacteriological laboratory. And there is one other thing that was mentioned in that list which might be emphasized, namely, prophylactic use of antibiotics in surgery on the genito-urinary tract of individuals with valvular heart disease.

I think everyone recognizes the importance of administering penicillin prophylactically to patients with endocardial lesions who are going to have dental extractions, but not infrequently patients who have this cardiac problem undergo other types of surgical procedure without the benefit of prophylaxis, and bacterial endocarditis follows this chain of events. It is very important to remember, therefore, that any manipulation, particularly of the genito-urinary or gastrointestinal tract, of a patient with valvular heart disease should be accompanied by penicillin prophylaxis.

DR. LONG: Well I think we had better close this with another citation. There is the evidence which has been collected relative to the use, primarily of penicillin, as a prophylactic agent in wounds, which has been studied after the tornadoes at Worcester and Waco, and a number of other places which indicate that

you get no prophylactic effect from your penicillin if you close your wounds. The contaminated wound broke down and the situations were messy. In contaminated wounds you cannot protect yourself with penicillin prophylaxis if you close them. The thing you have to do is leave the wounds open, give your penicillin, clean them up and then close them secondarily five to ten days later.

Now, because I am watching out time, and we want to have a little time on the problem of resistant staphylococcal infections, and as Dr. Austrian has to leave by ten minutes after five to catch a train, I am going to ask Dr. Rogers if he will briefly discuss as he sees it, and he sees a lot of it because he has been interested in it, the problem of resistant staphylococcal infection, and why we have this problem on our hands today.

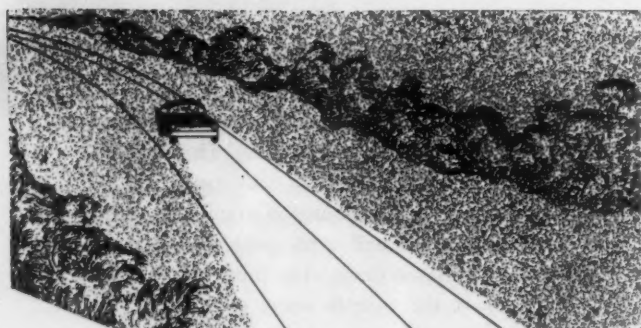
(Concluded in next issue)



STOP AT CORONER'S CORNER . . .

Read the stories doctors write of their unusual experiences as coroners and medical examiners.

SEE PAGE 39a



Tobacco Amblyopia

HALSTEAD S. HEDGES, M.D.
Charlottesville, Virginia

The role of smoking as a cause of highway accidents.

I have been in active practice for sixty-eight years, of which the last sixty have been devoted almost entirely to eye work. In the last few, I have been greatly distressed by the marked increase in tobacco amblyopia. One of my good friends who has been a confirmed smoker (he has stopped now) tells me that I find so many because I look for them. Well, my experience in a rather long life is that there are many things we never see unless we look for them.

I have found two totally different classes of trouble: one due to sudden vasomotor spasm of one or more of the cerebral vessels, usually binocular, but if monocular, the latter accompanied by paralysis of the upper extremity of the same side.

A big strong forty-year-old truck driver came in. "Doctor, I want you to examine my eyes. When driving, suddenly everything goes black before me. I can't see a thing and have to get off the road as fast as I can and wait for my sight to come back." I begged him to stop his cigarettes. He did, and came back not long ago telling me, "That was the hardest thing I ever had to do in all my life, but I have not had a blackout since."

I saw five of these cases last year, one a woman of forty-five whose trouble disappeared as soon as she gave up cigarettes. One case resulted in a rear-end collision on the road. The blindness usually lasts only a few minutes, but some have been helpless for one and a half to two hours.

No one will ever know how many of the fatal accidents on our crowded highways have been caused in this way.

A totally different type is caused by a slow degeneration of the retinal cells from which the papillo-macular bundle of nerve fibers arise. In these cases you find a marked deficiency in riboflavin and free B_{12} in the blood. The tobacco people claim that this is the cause of these far-advanced cases of binocular tobacco blindness. My contention is that the nicotine poisoning is the cause of the low B_{12} , and I have challenged them to find a far-advanced case, measure his B_{12} , give no treatment at all, and only stop his smoking. Then measure the B_{12} as the eyes come back, as I know they will. At least all of mine have done so. This type

Dr. Hedges is Professor Emeritus, Ophthalmology, University of Virginia.

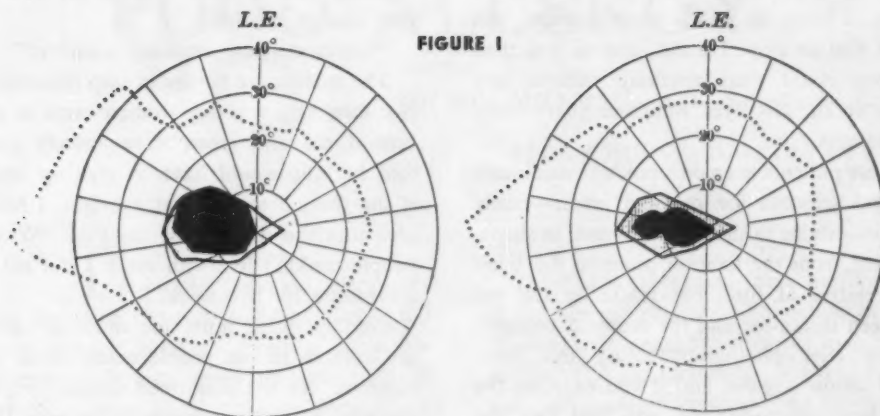


FIGURE I

Diagrams from Groenouw, illustrating islands of absolute defect within the relative scotomatous areas.

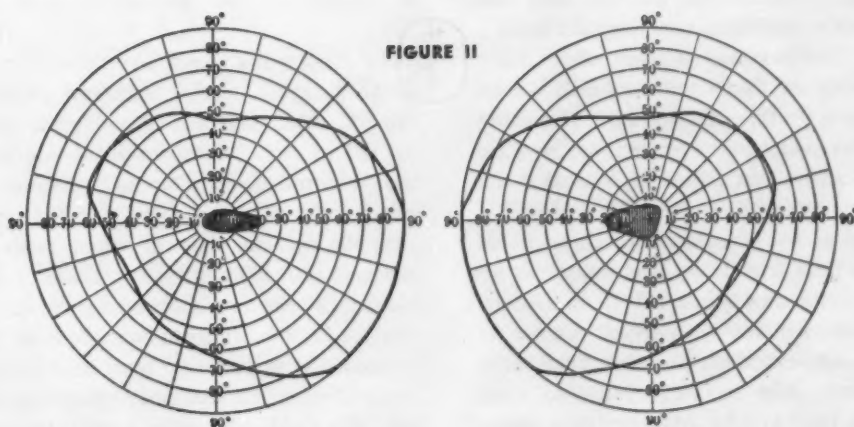


FIGURE II

Typical oval scotomas from a case of tobacco-amblyopia. The patient, aged sixty, had smoked four pipes of tobacco daily and an occasional cigar since he was nineteen; a moderate beer drinker. From: De Schweinitz: Toxic Amblyopias, Lea Bros., 1896, page 77.

begins with dull frontal headaches and inability to do close work in comfort; and before long they find themselves needing old age glasses long before they normally should.

A young man of thirty-seven came in with distant vision perfect, but unable to read a line of type. I knew he was a chain smoker, and begged him to stop. He did, and in less than a month could read anything without any glasses at all. His eyes were ten years older than he was.

If these patients keep on smoking, insidiously a central scotoma for red and green—rarely for blue—begins to show up. It is oval in shape, extending from the fixation point to the blind spot, relative at first, but gradually the red and green disappear and the scotoma becomes absolute (See photographs). By this time, central vision is gone, and if you examine the nerve head carefully, you will find that the area of the optic disc filled by the papillomacular fibers has a dull, lifeless look. It is the lower temporal quadrant. Fortunately, however, if the patient will stop tobacco entirely, the picture will change entirely, and a man industrially blind will, in two or three months, recover his sight without any medical treatment.

Last year a man of fifty came in. "Doctor, I want you to see my eyes. I have lost my

eyesight and my job. I have a family to take care of, and I have nothing." He had a typical late tobacco eye. I begged him to stop. He did. Not long ago he came in, the happiest man I have seen for a long time, eyesight completely restored, and he said, "I have the best job I ever had in my life."

"Worth stopping smoking, wasn't it?"

The women are harder to stop than the men. Not long ago, a young woman came in whose central red and green were already gone. I told her she would have to give up smoking if she wanted to save her eyesight. I have no idea that she did so, for she said, "Why, my people couldn't live with me if I did not have a cigarette for two weeks."

Frankly, what hurts me most of all is to see millions of our people made slaves to the cigarette, for the confirmed smoker is just as much an addict to nicotine as the poor Chinaman is to his opium pipe. It makes me sick to see how the cigarette people are invading our high schools, where already some sixty percent of the boys are smoking.

I cannot express my feelings as to sudden coronary deaths and lung cancers. To me at least, there is no question.

104 East Market Street



FOOD ALLERGY

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The problem of food allergy occupies the same status as inhalant allergy did some twenty-five years ago. Except for a few outstanding allergists generally interested in this subject, most physicians, including many practicing in the field of allergy, render only lip service to this important subject. The complexities of the problem, the difficulties surrounding the mechanisms of sensitization and a lack of laboratory confirmation, have discouraged many workers in this field. Finally, the psychodynamics of ingestion of food, and the reactions to removing these foods during trial diets, may bring about problems resembling those present in the management of obesity.

The classical reactions to a few foods which precipitate bronchial asthma, urticaria, angioedema, and other allergic syndromes, are well known and easily recognized even by the patient himself. The more subtle forms of food allergy, either at work singly, in combination with other foods, or with inhalant allergens, are less obvious and more difficult to diagnose.

Many allergic patients, even after a thorough study by competent allergists, still fail to enjoy complete relief from their symptoms because of a smoldering, unrecognized sensitivity to foods. On the other hand, many individuals with nasal allergy, respiratory allergy, urticaria, and allergic headaches, are completely relieved of their symptoms when the offending food allergens are found and eliminated.

There is no substitute for a thorough study of the allergic patient. Elimination or control of allergic diseases presupposes that as many of the etiologic factors as possible be eliminated or rendered innocuous by hyposensitization. In those individuals in whom food allergy is of little importance, dietary control will result in no perceptible effect; for those people who have food allergy as all or part of the etiologic mechanism, it is important to first understand the basic principles of food allergy and second, to set up a plan to study and eliminate the food allergens. It is proposed, in this paper, to present an outline of such a plan tried over the past eighteen years.

Food allergens may be defined as those foods which, under direct testing conditions, produce clinical manifestations which are constant, reproducible and specific. They may exhibit fixed or intermittent sensitization and further are composed of major and minor allergens.

Fixed sensitization is the most serious, but the most easily diagnosed, and is manifested by the appearance of clinical symptoms irrespective of the frequency with which the food is eaten. Intermittent sensitization, on the other hand, refers to the appearance of symptoms on some occasions with complete absence on others. This type of food allergy has been termed "cyclic" by Rinkel,⁹ becoming clinically evident with the use of the food, and tending to disappear with the omission of the food. The presence or absence of an allergic

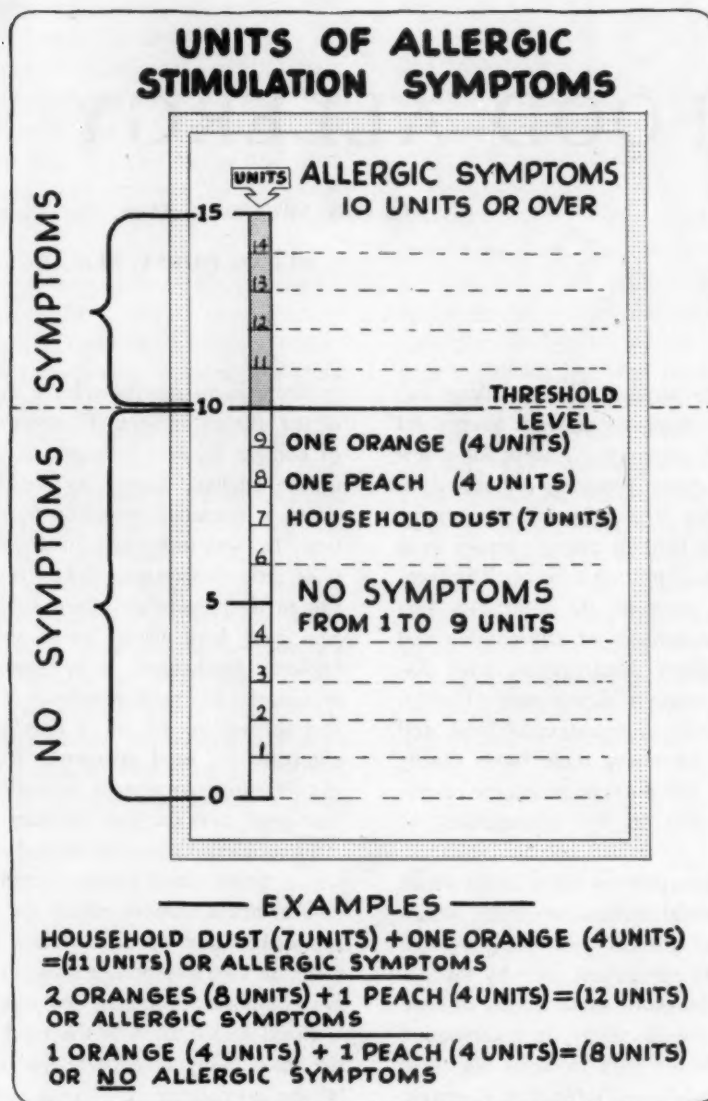


FIGURE 1

(Reproduced from Pardon My Sneeze, 2nd Ed., Frye and Smith, 1960.)

state is then determined by the frequency of the food in the diet.

A. MAJOR FOOD ALLERGENS are those foods that in themselves will bring out an allergic syndrome. The allergic reaction may occur immediately, within a few minutes or a few hours, or in one to two days after ingestion. For example, when an individual eats an orange, strawberries, or eggs, and within an hour develops sneezing, or angioneurotic edema, the offending foods would be called major food allergens.

B. MINOR FOOD ALLERGENS are those foods causing an allergic response below the threshold level sufficient to produce a clinical effect. They may produce symptoms in the presence of other allergens or at times when the threshold level in the patient is lowered (See Figure 1).

Minor food allergens are thus allergens which produce a subclinical sensitivity. Major food allergens, or other minor allergens, may then produce a synergistic effect and reach a threshold of sensitivity. Hay fever, due to ragweed, which pollinates in the East, from August 15th to frost, is ordinarily controlled well with hyposensitization with ragweed antigen injections. In some patients, hyposensitization with ragweed antigen, does not give a favorable, or only a partially favorable, result, until the minor food allergens are found and eliminated from the diet; the same foods may be eaten with impunity when ragweed is not pollinating.

There are other individuals, both children and adults, who develop frequent respiratory infections. Chilling, or exposure to others with "colds," seem to bring on respiratory infections with great ease. It may be postulated that a certain degree of chronic mucous membrane swelling is present due to a "low grade allergic situation." In many of these people, elimination of minor food allergens makes them considerably more resistant to such infections; eating the same foods in the interval between infections seems to cause no perceptible difficulty.

Urticaria is frequently caused by food aller-

gens, both minor and major. The major food allergens may produce urticaria by themselves. Minor allergens alone rarely cause urticaria, but at times in combination with a severe emotional upset, will bring on the rash or angioneurotic edema. It is difficult to eliminate the emotional factors that bring on such attacks, and it is easier to find and eliminate the food, which, in conjunction with the emotional situation, brings out the urticarial lesion. Fatigue also lowers the threshold of the allergic patient, thereby setting the stage for minor food allergens to produce their effect.

It may be stated therefore, that minor food allergens do not in themselves cause allergic reactions, but act as concomitant allergens in the presence of other allergy producing agents, such as, pollen, dust, infection, exposure to sudden changes in temperature, fatigue, and emotion. The combination produces a lowering of the threshold or an increase in the allergic load.

The term minor food allergen is only a relative one. When ordinary amounts of the food are eaten, the foods may cause no problem. When larger amounts of the same food are ingested, allergic symptoms may occur. For example, one orange may cause no difficulty, yet two or three oranges could. In the larger amounts eaten, the food allergen then becomes, in effect, a major food allergen. It should be noted that a major allergen for one person may be a minor allergen for another and no allergen for a third person. The amount of the food, the circumstances under which it is ingested, and the combination with other factors, all will play a role in the decision as to what part the food will play (See Table).

Diagnosis of Food Allergy

It must be remembered that food allergy, though an important cause of allergic symptoms, may not in itself be the sole cause of the syndrome. Pollens, inhalants, drugs, bacteria, and focal infection may be at fault. Alone or in any combination with the above, with or without psychogenic factors, various types of allergies may be produced. A complete

SYMPTOMS OF FOOD ALLERGY

NAME	CLINICAL SYMPTOMS	CONFUSED WITH:
Neuromuscular Group (allergic toxemia) Frequently associated with G.I. disturbances, vasomotor rhinitis, allergic headaches	Weakness, fatigue, poor mental concentration, nervousness, sleepi- ness, morning fatigue, irritability, generalized aching	"Neurasthenia", psychoneurosis, un- dulant fever, hypothyroidism, rheu- matic fever, infectious mononu- cleosis, hypoglycemia
Neurological Symptoms	Headaches, epileptiform, convul- sions, Menière's syndrome, per- sonality changes	Brain tumor, epilepsy, Menière's disease, psychosis and psychoneu- rosis
Fever of Unknown Origin	Fever, G.I. symptoms, anorexia	Almost any cause of F.U.O.
Arthritis	Recurrent joint pain, swelling, ten- derness	Rheumatic fever, rheumatoid arthritis
Gastrointestinal Symptoms	Abdominal pain, distention, eructa- tions, diarrhea, flatulence, vomiting	Gallbladder disease, ulcer, irritable colon syndrome, etc.
Urological Symptoms	Recurrent frequency and burning of urination	Urethritis and cystitis

Vasomotor rhinitis, asthmatic bronchitis, bronchial asthma, urticaria, atopic derma-
titis have all been caused by foods either alone or in combination with inhalants.

and careful study of all mechanisms is neces-
sary in the handling of the allergic patient.
A good understanding of the relative impor-
tance of each of the mechanisms is of utmost
importance. The diagnosis of food allergy is
based on the following major points:

1. History. 2. Use of skin tests. 3. The
study of elimination diets.

1. Evaluation of a Food Allergy History

The history is the most important aid in
the determination of food allergy. It follows
that the more careful and complete dietary
history, the more successful will be the evalua-
tion of the influence of food allergy in the
allergic patient. The food history should stress
the following points:

1. Direct questioning as to known food
idiosyncrasy of those foods which are suspect.

2. Specific questions should be asked
concerning known common offenders, such as,
chocolate, nuts, mustard, pepper, pork, chicken,
fish, eggs, milk, wheat, corn, potatoes, tomatoes,
orange, spinach, strawberry, cherry, cabbage,
and colas.

3. The patient may fill out a chart containing
a complete list of foods and mark on this list
those that definitely cause trouble, those that
he suspects, and those that seem to cause no
symptoms at all.

This list has two main uses:

A. It calls attention to possible offenders
which can be later checked;

B. It gives a good idea of the frequency
the patient eats the various foods in his
diet.

4. The food diary: A daily record should
be kept by the patient of the foods eaten each
day, together with the nature and degree of
symptoms for each day. This diary must be
accurate and complete and it should include
the record of exposure to other possible
antigens or situations which might effect
allergic symptoms other than foods. The diary
should, therefore, include any unusual activity
for the day (See Figure II).

2. Skin Tests

The value of skin tests in the study of
hypersensitivity to the foods is controversial.

14 DAY FOOD DIARY																	
NAME		DATES						NAME		DATES							
	FOODS	1/1	1/2	1/3	1/4	1/5	1/6	1/7		FOODS	1/1	1/2	1/3	1/4	1/5	1/6	1/7
MORNING	Bread	✓	✓	✓	✓	✓	✓	✓	Bread	✓	✓	✓					
	Bacon	✓							Bacon	✓							
	Egg	✓	✓	✓	✓	✓	✓	✓	Egg	✓	✓	✓					
	Coffee	✓	✓	✓	✓	✓	✓	✓	Coffee	✓	✓	✓					
	Cream	✓	✓	✓	✓	✓	✓	✓	Cream	✓	✓	✓					
	Oatmeal		✓	✓	✓	✓	✓	✓									
MID-DAY	Lamb	✓				✓			Milk	✓	✓	✓					
	Beef		✓	✓	✓		✓	✓	Beef	✓							
	Carrots	✓	✓						Stringbeans								
	Peas	✓	✓	✓	✓		✓		Peas	✓	✓	✓					
	Lettuce	✓	✓	✓	✓	✓	✓	✓	Lettuce	✓							
	Tomato		✓		✓	✓	✓		Bread	✓	✓	✓					
EVENING	Egg	✓			✓	✓	✓	✓	Egg	✓	✓						
	White Potato	✓	✓	✓	✓	✓	✓	✓	White Potato	✓	✓	✓					
	Stringbeans	✓	✓						Carrots	✓	✓	✓					
	Lettuce	✓	✓	✓	✓	✓	✓	✓	Peas	✓	✓						
	Tomato	✓	✓	✓	✓	✓	✓	✓	Bread	✓	✓	✓					
	Coffee	✓	✓	✓	✓	✓	✓	✓	Butter	✓	✓	✓					
SYMPTOMS									SYMPTOMS								
Sneezing		W	M	S	N	W	M	S	Sneezing		N	W					
Short of Breath		W	M	S	N	W	M	S	Short of Breath		N	W					
Weakness		W	M	S	N	W	M	S	Weakness		N	W					
MEDICATION									MEDICATION								
W=SEVERE M=MODERATE S=SLIGHT N=NONE																	

1/1 Used a new Laundry Soap - been tired and weak - Some sneezing and headache.

1/2 No Complaints

1/3 " "

1/4 Feel Good

1/5 Weak and tired all day, headache

1/6 No complaints

1/7 Have been nervous and tired, short of breath.

FIGURE II

(A form similar to this chart is supplied by the Ralston-Purina Company.
 Reproduced from Pardon My Sneeze, 2nd Ed., Frye and Smith, 1960.)

Rose and Rowe^{11,12} state, "the fallibility and errors in skin testing in the diagnosis of food sensitivity must be emphasized." They also state, "intradermal tests with foods are not done routinely because of the indefinite, moderate, or slight reactions which occur that are not associated with clinical sensitivity." Sheldon¹³ stated, "a great amount of confusion has arisen regarding how to evaluate reactions to the food skin tests, and many physicians have become so discouraged with skin tests of food that they no longer perform these tests."

Clinical experience has shown that even among children, about twenty percent of positive skin reactions to foods can be correlated with actual clinical symptoms produced by the ingestion of the incriminated foods."

In a recent publication by Millman and Richmond,⁶ a correlation of intradermal food skin tests with allergic antigenicity was made. The skin tests were performed by the intradermal method. Test reactions were divided into several categories, that is, negative, one, two, three or four plus. The strong reactions, that is, the three and four plus reactions, the milder reactions, and the negative reactions, were correlated separately with the results of feeding trials. Wide variations were found. For some foods, agreement of the skin tests with the clinical response to trial feeding was excellent; in others, the agreement was poor. In some instances, the correlation was high when the test was negative, or three or four plus, but low in the reaction levels of one and two plus.

It was therefore decided that each individual food test should be correlated and evaluated on its own merits. Egg white showed an eighty-seven percent correlation between the negative results of the tests and clinical non-sensitivity. There was an eighty-two percent correlation with clinical response when the skin test was three or four plus, fifty percent when two plus, and thirty-seven percent when one plus. If the one plus was considered a negative reaction, the negative correlation was eighty-four percent. Chocolate correlated

ninety-six to one hundred percent in any degree of positive from one to four plus, but only fifty-five percent when negative. Other foods that showed significant reactions, when correlated clinically, were pork, white potato, rice, banana, tomato, spinach, and shrimp. The results of correlation with beef, lamb, string bean, and pineapple, were poor when correlated with a clinical response to ingestion. Thus, skin tests with food substances can be of great practical value, only so long as their limitations are recognized and the varying degrees of accuracy as between the different substances and the variation of accuracy from one degree of reaction to another are born in mind. In addition to this, some patients seem to have reactions on the skin which correlate readily with their food sensitivities, while other patients may or may not have positive reactions and correlate poorly. In practice, on a routine basis, intradermal testing is now done to the following foods: Banana, carrot, chocolate, coffee, corn, egg white, oat, orange, pea, peanut, pork, potato, rice, rye, shrimp, tomato, wheat, and cow's milk.

3. Elimination Diets

Rowe¹⁰ has presented a number of elimination diets which contain detailed lists of foods, sample menus, and recipes. These diets are modified depending upon the history and where indicated, skin tests. Such stereotyped diets have several disadvantages:

1. There is no such thing as an allergy free diet which is true for all patients;
2. Not every patient must be on an extremely limited diet when first seen by the doctor.

It is unwise to routinely place patients on strict elimination diets at the onset of allergic therapy, because there may be so many variables, that in the presence of a complicated allergic problem, the food allergy might be missed. If a more liberal diet is used in the early phases of dietary control, many food allergy problems may be solved. In those individuals where the food allergy problem is not solved, more painstaking food studies may be made. During this period, other factors, such

as, inhalants, pollens, emotional disturbances and infections, should be treated so that when an elimination diet is being evaluated, the other variables are controlled as much as possible.

The basic or elimination diet is not a liberal one, but should be adequate for nutritional needs. Occasionally, nutritional balance is not achieved on the original diet, but this must be only of short duration. When new foods are added, one at a time, the first additions must be to improve the diet nutritionally and to make the diet more palatable.

The basic idea of the elimination diet is to first control symptoms, then add foods which, if responsible for allergic symptoms, will produce a demonstrable, clinical effect. The original base diet is developed from foods which are less common offenders and this must be modified depending upon the history and the elimination of the skin positive foods. In the event a base line of freedom of symptoms occurs, each new food is added singly, twice a day, if possible, and continued for at least four days before it can be considered innocuous and new foods tried. It is important to note that no clinical symptoms may show at the initial servings of the foods and that one food may cause symptoms for as long as a week. It is also important to control foods in the diet strictly. The mode of preparation is of vital importance since patients frequently believe that they are eating the correct foods and yet are seasoning them with tomato, onion, garlic, pepper, bacon, and other ingredients. Special attention should be given to medicines prescribed by other physicians, as well as chewing gum, candy, soft drinks, and proprietary foods of unknown make, which patients frequently do not consider as part of their dietary control.

The senior author presented a sample base diet first published ten years ago and it is the one that is used routinely in practice. It has the following advantages:

1. The list of foods can be printed in pads and kept on the desk.
2. One does not have to know many dif-

ALLERGIC DIET

BREAKFAST:

Pineapple juice or apple, grapefruit, pear.
Tea.
Puffed Rice, Cooked Rice, Cream of Wheat, oatmeal.
Cane sugar.
Bread and butter.
Evaporated milk diluted with 50% water.
Ry-Krisp.

DINNER:

Lamb or steak, veal, roast beef.
Carrots, beets, celery, lettuce, asparagus, broccoli, squash.
Soup (must be homemade and only of allowed ingredients).
White potato or sweet potato.
Tea with evaporated milk.
Bread and butter.
Cane sugar.
Baked apple.
Evaporated milk diluted with 50% water.
Ry-Krisp.

SUPPER:

Pineapple juice or apple, grapefruit, pear.
Tea.
Carrots, beets, celery, lettuce, asparagus, broccoli, squash.
Bread and butter.
Lamb or steak, veal, roast beef.
Evaporated milk diluted with 50% water.
Ry-Krisp.
Salt allowed; Cook with butter or shortening.

A food eaten at one meal, can be eaten at any other. No seasoning is allowed unless specifically recommended. Fruit juices, unsweetened, no canned or frozen foods. No substitutions may be made without the consent of the Doctor. Please keep a daily food diary, noting all symptoms each day.

ferent types of diets, each of which has to be modified to the individual patient.

3. It can be balanced nutritionally.

4. There are several different choices of each food on the printed list. Removal of certain foods is easily accomplished and new additions can be made as indicated.

5. For the initial diet, the physician can and must know each of the foods, as to the frequency of sensitization, nutritional value, methods of preparation, and what the skin test means for each food with its extracts and the method of testing.

A few patients are given the diet as printed; in others, it is modified depending upon the history as obtained by questioning, food check list, diaries, and when necessary, by skin tests.

Fruits are common allergens and may be eliminated from the preliminary diet when indicated. If there is a suspicion of wheat allergy, wheat being a common allergen, it may be eliminated. When wheat is allowed, bread can be included providing it is egg-free. Beef sometimes causes allergic symptoms, but in general, veal, beef, and lamb work out satisfactorily. Evaporated milk may be used initially, inasmuch as individuals allergic to whole milk can frequently tolerate evaporated milk. Butter may be omitted if there is a tendency to milk allergy. The various cheeses may be added to the diet provided that there is no milk allergy and no tendency to a mold allergy (many of the cheeses are aged with mold). The different cheeses are made from the milk of several different animals, and this may have to be

considered. When milk has to be eliminated from the diet, all milk, butter, and bread, which contains milk solids, must be eliminated as well. There are milk solids in some oleo preparations and a milk-free oleo would be used, if allowed, in place of butter.

Vegetables, such as beets, carrots, and celery may be potential allergens, but, in an initial diet, may be left in, unless there are other reasons to eliminate them. It is wise to use only one type of cereal initially. On the other hand, if wheat is included, the wheat cereals may be allowed. In the absence of wheat, oat cereals, rice or barley may be tried. With cereal allergy suspected by any of the previous data from history or testing, all cereals must be eliminated from the diet.

It must be remembered that the list of foods printed is simply a food list and must be modified for each patient. The diet may be liberal in the first study because many of the food allergen problems can thereby be solved painlessly.

On the other hand, if this does not work, then the diet may be cut down further, always keeping in mind that the diet should be balanced. After the base line is established, new foods are added, one at a time as previously outlined, leaving the suspicious foods noted by history, skin tests, and avoidance of common allergens, to the very last. Vitamins, too, may act as allergenic agents, and should not be added routinely at the onset of the diet study, but tried later as one would a new food addition.

Summary

The best results in the management of food sensitivity are only obtained by a complete understanding of the mechanism of food allergy, and the necessary steps taken to work out the problem. This is not difficult when set up on a routine basis. In the author's practice, it is common to give the patients, who are suspected of a food allergy, a rather liberal diet, as outlined, with only minor modifications, while the skin testing is in progress. By the time the skin test period is over, some of the

food allergy problems may be solved already. It may be noted then that the food allergy may not be an important cause of the allergic syndrome. In this event, the patient is told only to avoid the common food allergens previously listed.

After several weeks of attempted control of the other allergenic factors by avoidance of allergens where possible, hyposensitization, treatment of infection, and symptomatic remedies, a more strict base allergy diet

may be outlined to bring the patient under more satisfactory allergic control.

Finally, one should bear in mind that in no other field does the influence of psychologic factors play so large a role. This is true to such a degree that the junior author noted an almost complete disregard of food allergies in a large national asthma institution for children. The fact that a multitude of other factors had

been obviated by removal to such a "home" was disregarded. As was stated previously, it is easier to discover and eliminate offending allergens than to attempt to change the total personality structure of the individual. The greater the interest of the physician in the details of diet, the greater will be the degree of his success in handling his patients' food allergy problems.

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Vascular Lesions in

The important lesions of the blood vessels in diabetes mellitus are conveniently considered under three headings: 1. Lesions of the large arteries, i.e., those usually included loosely under the term "arteriosclerosis." 2. Lesions of the arterioles, "arteriolosclerosis." 3. Lesions of the capillaries and venules. Those listed in Groups One and Two, while they do not seem to differ qualitatively from the same lesions as seen in nondiabetics, usually occur with greater frequency and severity and often at an earlier age in diabetic patients.

The lesions in Group Three are so characteristic of diabetes that they may be regarded as virtually specific. Although all types of blood vessels are involved in all forms of vascular damage, the specific lesions in diabetes appear to involve the smallest blood vessels — capillaries, arterioles and venules — especially those in the retina and in the glomeruli of the kidneys.

In patients whose diabetes begins early in life, a triad is being recognized with increasing frequency, namely, neuropathy, retinopathy and nephropathy to which the term "triopathy" has been applied. A review of all the cases of diabetic neuropathy in the files of The Johns Hopkins Hospital,¹ (Becker and Davies, unpublished observations) revealed that over ninety percent had diabetic retinopathy.

The fundamental question is whether the vascular lesions which accompany diabetes are a part of its natural history or complications. If the first viewpoint is correct, the diabetic pa-

tient must be regarded as facing the inexorable course of an unalterable disease. Contrariwise, if the other concept is the true one, these lesions should be preventable.

Diabetic Retinopathy

Diabetic retinopathy is the most common vascular manifestation in the eye. This condition was formerly designated "retinitis" or "retinosis," but the term "retinopathy" is both more descriptive and all-inclusive, since it emphasizes the degenerative nature of the changes occurring in retinal vessels. Following decades of controversy as to its nature, it is now well established that diabetic retinopathy presents a characteristic ophthalmoscopic picture first described by Jaeger in 1855 and more extensively by Leber in 1875. The classic studies of Hirschberg in 1895 helped to resolve the arguments as to whether this condition was not identical with the so-called albuminuric retinopathies. Hirschberg not only pointed out their ophthalmoscopic differences but also showed the variations in their course and morphology; e.g., many patients with diabetic retinopathy had neither albuminuria nor hypertension.

The retinal lesions may be among the earliest manifestations of diabetes. All too often, retinopathy is the initial finding leading to the diabetes usually on a routine ophthalmologic examination. The ophthalmologist has a most important place in observing the progress of the retinopathy. The retina is readily examined and the ophthalmoscope should be used at every periodic examination. Further, it is

Diabetes Mellitus

advisable to study the diabetic patient under a mydriatic for evidence of early vascular damage.

Ophthalmoscopic Classification of Diabetic Retinopathy

The characteristic retinal changes are usually bilateral, are located in the inner nuclear and outer plexiform layers, with extension to adjacent layers between the upper and lower retinal temporal vessels and in the area about the optic nerve. The disk is always normal in appearance; there is almost never any papilledema. The different stages of diabetic retinopathy are clinically of different degrees of severity.

STAGE I. The earliest visible changes are venous stasis and capillary microaneurysms. It is generally agreed that the basic retinal lesion of diabetes is the tiny, sharply circumscribed red dots in the retina, the so-called microaneurysms of Ballantyne. The microaneurysms are usually found in the precapillary venules situated mainly in the outer nuclear layers. This lesion is a true aneurysmal dilatation with a basement membrane and both afferent and efferent connections. In an early stage, only one or two lesions may be present but additional lesions appear later. For years, they were thought to be hemorrhages, because it is ophthalmoscopically difficult to differentiate them.

Often there are actual small hemorrhages, probably associated clinically with leaking microaneurysms, appearing as faint "sponge

blots" about the more definite round spots. The hemorrhages are also seen independent of microaneurysms in the deeper layers of the retina, where the supporting fibers limit their spread, producing a punctate appearance. Characteristically, the small round hemorrhages are discrete and can usually be observed with the ophthalmoscope. They persist for months and then disappear either without a trace or are replaced by a small yellow dot.

Venous changes observed in the retina are increased fullness, venous stasis, localized bulges, sausage-shaped dilations and beaded veins.

STAGE II. The ophthalmoscopic signs of the second stage are the deep punctate hemorrhages and exudates, in addition to microaneurysms.

The characteristic exudate of diabetic retinopathy is the glistening, waxy, hard type located near the capillaries and other smaller vessels. In contrast to the white "cotton-wool" exudates commonly seen in the retinopathy of hypertension and nephritis, the diabetic lesions are described as hard patches with rather well demarcated edges. These exudates are irregular, exhibit tendency to coalesce, and as a rule are found in small clusters or in isolated areas. With progression, they show a tendency to arrange themselves around the macular region and in most instances encircle it. Exudates are believed to be formed by transudation through damaged capillary walls. The smaller lesions are whitish, round spots, some of which may represent hyalinized aneurysms.

The scattered round hemorrhages occur most commonly at the posterior pole in fundi that are otherwise normal. Like the microaneurysms, they are usually found in the inner nuclear and the outer plexiform layers, which suggests their origin as a leak from a capillary aneurysm or a venule. In the second stage, the venous endothelium may proliferate to block the channel partially or, in some cases, completely. This is clinically visible as localized dilatation and narrowing of the veins, sometimes with perivenular sheathing.

STAGE III. Most diabetics do not develop

any more severe retinopathy than the above. However, a small percentage of, more often juvenile, diabetics progress to Stages III and IV. This is a grave prognostic development, visually speaking. The ophthalmoscopic signs of Stage III are those of increased venous pressure, large superficial hemorrhages, occasional flame-shaped hemorrhage, neovascularization at the venous end of the capillary network, and fibrosis of the retinal surface in attempts at organization of surface hemorrhages. With progression, the hemorrhages may become larger and in very advanced instances of the disease extensive preretinal and even vitreous hemorrhages may occur. The vision of the patient may become so greatly impaired because of extensive hemorrhage into the vitreous that even light perception is lost. On examination, the pupil in the affected eye is black and no fundus reflex can be obtained. In some instances, newly formed blood vessels are found with proliferating bands of tissue extending forward from the retina into the vitreous. In many, neovascularization develops insidiously, without evidence of sudden intravitreal hemorrhages.

STAGE IV. The fourth stage is a continuation of Stage III with increased severity, i.e., vitreous hemorrhages, proliferating retinopathy, retinal detachment, and secondary glaucoma usually associated with visible dilated vessels at the root of the iris (rubeosis iridis). Venous congestion and stasis is often an outstanding finding in this stage and occasionally, a typical occlusion of one of the main venous branches occurs.

Proliferative retinopathy in the adult has become almost pathognomonic of diabetes. As mentioned above, proliferative retinopathy may either follow hemorrhagic retinopathy or may develop directly without being preceded by any other type. It is characterized by the new formation of fibrous tissue, especially at or near the optic disc, often as organization of areas of hemorrhages leading to the formation of bands of yellowish-white translucent scar tissue and newly-formed vessels. In some patients, later developments are retinal detachment and blind-

ness. The incidence of proliferative retinopathy has steadily increased. It does not occur to the same extent in all diabetic patients with long-term disease, but predominantly in the young and middle-aged adults who have had diabetes for an average of approximately seventeen years. The reason for the high incidence in the younger age groups is not clear but is suggestive of a close relationship to the severity of aberration of metabolism.

Cotton wool patches, deep nerve fiber hemorrhages, papilledema and hypertensive changes are not observed in uncomplicated diabetic retinopathy. These signs usually signal the presence of other conditions superimposed upon the underlying diabetic changes. Sometimes these changes progress to even complete disorganization of the eye.

BLINDNESS. Diabetic retinopathy has become one of the most frequent causes of progressive, irreversible blindness. Although the early and more severe lesions usually occupy the macular region, the fovea may be spared for months. When this happens, vision is little affected. Recurrent hemorrhages eventually lead to a total loss of vision. This threat to vision in the diabetic is encountered at all age levels, from adolescence onwards. Total loss of vision is tragic.

Diabetes is the cause of blindness in seventeen percent of the blind in the State of Massachusetts. When young patients only are reported, the incidence of blindness due to diabetes is twenty-five percent. The incidence of blindness in long-term young diabetics is ten percent.

The Clinical Course of Intercapillary Glomerulosclerosis in Diabetes Mellitus

In 1936, Kimmelstiel and Wilson pointed out the association of diabetes, nephrotic edema, gross albuminuria, hypertension and intercapillary glomerulosclerosis. Since the publication of that report, much has been written about intercapillary glomerulosclerosis found frequently at postmortem examination. Although the capillary lesions in the kidney are referred to as "diabetic glomerulosclerosis" and

"Kimmelstiel-Wilson lesion," the original term "intercapillary glomerulosclerosis" has become fairly well established by usage.

Renal biopsy studies lead to the belief that the kidney is, in many instances, affected early and severely. The presence of the nodular lesion in the renal glomerulus, which has been suspected of being present in other places as well, is an almost unmistakable anatomic landmark of diabetes and is now generally accepted as pathognomonic of diabetes. Its essential feature is a focal clumping of hyalin material which appears to intervene between the lumens of glomerular capillaries in an axial distribution. Critical review of Kimmelstiel and Wilson's original description and illustrations of the glomerular lesion makes it clear by comparison with other reports that certain differences of opinion and confusion originated in the failure of some subsequent observers to delineate the morphological lesion in terms as precise as those originally proposed. Thus, twenty-five years after the description of the Kimmelstiel-Wilson lesion, there is practically unanimous acceptance of its specificity as an anatomic vascular lesion of diabetic patients. In patients with onset of diabetes in childhood, dying after a duration of at least fifteen years, particularly in those with poor control, characteristic lesions are invariably present. In those instances in which it is found in patients said to have been nondiabetic, the adequacy of the clinical diagnosis is to be questioned. Mixed lesions consisting of intercapillary glomerulosclerosis, arteriolosclerosis, acute and chronic pyelonephritis and atherosclerosis are generally associated with the Kimmelstiel-Wilson changes. In fact, the combination is so characteristic and so predominant at autopsy that it is preferable to designate the clinical syndrome as diabetic nephropathy.

Diabetic nephropathy may be defined in terms of pathologic components or clinical manifestations. From a pathologic point of view, it embraces the following structural changes in the kidney of a diabetic patient: a) *glomerulus*: arteriolar sclerosis; b) *tubule and interstitial tissue*: infection with destruction of

tubular tissue and resulting fibrosis and scarring. In recent years, there has been an increasing recognition of the high incidence and importance of renal disease in patients with diabetes of long duration and in those with onset of diabetes in childhood and adolescence. In this latter group, it now accounts for more deaths than all other causes. This growing prominence of renal disease has been concomitant with the spectacular increase in recent years in the life expectancy of young persons with diabetes. In the period 1922 to 1936, diabetic nephropathy caused only two percent of the deaths in patients with onset of diabetes under the age of fifteen years. Since then it has been reported to afflict 19.5 to 37.5 percent of diabetic patients. In Crosley's series² the incidence in one hundred and ninety-five patients who had diabetes of ten or more years' duration was 18.5 percent and twenty-five percent in one hundred and twenty-one patients who had had diabetes for fifteen or more years. It is not found in all patients with diabetes, nor is every glomerular alteration in the kidney of a diabetic individual a specific one. Scattered classical lesions may be found in the absence of symptoms reflecting their presence.

AGE, SEX. Certain authors maintain that it is more prevalent in diabetics above fifty years-of-age, whereas others emphasize the condition in younger patients. In patients with intercapillary glomerulosclerosis, diabetes appears as early as nine-years-of-age and as late as the eighth decade; the average age at onset is forty years. The average age at death is fifty-five years. The patients in Epstein and Zupa's group with nephropathy³ lived from five to twenty-five years (average, 14.3 years) after the diagnosis of diabetes was established. Six patients lived for more than five years, and two as long as ten years, after the appearance of both albuminuria and hypertension.

SYMPTOMS AND SIGNS. The question might be asked; With what degree of confidence can the diagnosis of diabetic nephropathy be made antemortem? The clinical findings in this type of case often may be distinctive enough to warrant a diagnosis of intercapillary glomerulo-

sclerosis. For example, the diagnosis may be made with some degree of assurance when proteinuria is found.

Clinically, the picture first described by Kimmelstiel and Wilson in mild diabetic patients in late life is that of the nephrotic syndrome (edema, hyperproteinuria, hypoalbuminemia and hypercholesteremia) usually associated with hypertension, retinopathy, albuminuria, and doubly refractile lipids in the urinary sediment. Retinopathy usually precedes proteinuria which is transitory, at first, then becomes constant. In the fully developed situation, one finds a chronically ill person who has hypertension, a greatly diminished renal function, marked albuminuria and azotemia. Usually the disease progresses in clinical stages as follows: The first phase is the nephrotic stage followed by a second in which severe anemia is characteristic; third is a salt-losing stage; fourth, uremic; fifth, acidotic; sixth, cardiac; and seventh, encephalopathic.

The paucity of symptoms and signs associated with the typically insidious onset may make the diagnosis more difficult initially. The patient may present no signs or symptoms whatever; in which case, suspicion may arise from detection of proteinuria in a routine urinalysis.

The chronology of events in a typical juvenile instance of diabetic nephropathy is remarkably uniform. After one to fifteen years of inadequate treatment, the patient is found to have proteinuria during one of his infrequent visits to the physician. Physical examination reveals a few scattered retinal microaneurysms or hemorrhages. In succeeding months and years, other signs and symptoms appear. The patient may note some diminution of vision, proteinuria increases and peripheral edema may become an annoying manifestation. Progressive hypertension may develop and there may be slight azotemia. Pallor, a common finding in various studies, is consistent with the mild anemia represented by hemoglobin levels of 11.7 to 12.5 Gm. per 100 cc. Finally, the symptom that occurs most frequently is failing vision. The majority of patients progress to

total blindness and death in uremia. In Crosley's series,² four of the first eight patients were dead within three years.

HYPERTENSION AND ALBUMINURIA. In patients with diabetes of long duration, hypertension is commonly found associated with albuminuria and other evidences of nephropathy. The blood pressure may be normal for many months or years before it gradually rises to hypertensive levels. A blood pressure above 150 systolic, 90 diastolic, was consistently recorded in thirty (eighty percent) of thirty-seven patients with intercapillary glomerulosclerosis reported by Bryfogle and Bradley.⁴ The average duration of hypertension before death was 5.8 years, with a range of one to twenty-one years. In this same study hypertension was not present in seven of forty patients, including two who had an elevated nonprotein nitrogen. An elevated blood pressure is also extremely common in diabetes without nodular glomerulosclerosis. When hyperpiesia is present, it is related in turn to progressive cardiac enlargement, hypertensive retinopathy and renal vascular changes. Eventually, the effect on the left ventricle leads to congestive heart failure.

Probably the first manifestation of diabetic nephropathy clinically is albuminuria which may continue for some years without any detectable renal impairment. Proteinuria is a sign of comparatively widespread renal damage. As proteinuria appears later than retinopathy, its frequency is always less than that of retinopathy. The gloomy import of this sign is emphasized by an average length of life of only three and a half years (range one to seventeen years) after its detection. Albuminuria was present in all cases of nephropathy studied by Bryfogle and Bradley⁴ and, in general, the presence or absence of edema varied with the severity of the albuminuria, which ranged up to 670 mg. percent. Albuminuria was present in thirty-two patients (eighty-six percent) of a series reported by Kronenberg.⁵ In another report,⁶ albuminuria, considered clinically significant in estimated quantities of 2 plus or more, was found in seventy-one percent of

cases of intercapillary glomerulosclerosis and only in thirty-three percent of diabetics without this kidney lesion. Here again this finding is of great significance in the young diabetic; all of the instances of intercapillary glomerulosclerosis below fifty years-of-age studied by Mendelow⁷ displayed albuminuria in contrast to only fourteen percent of the control diabetics of the same age group. Coexisting pyelonephritis and congestive heart failure undoubtedly contribute to proteinuria in many cases. Although it is possible for intercapillary glomerulosclerosis to occur in the absence of either persistent albuminuria or hypertension, in only one patient of Epstein and Zupa's series³ were both these findings absent.

RETINOPATHY, NEUROPATHY. In time, typical diabetic retinopathy, which may have progressed to retinitis proliferans, develops. Eighty percent of the patients with Kimmelstiel-Wilson lesions in Epstein and Zupa's series³ and one hundred percent of the patients in Crosley's experience,² had retinal lesions. In addition, some patients show characteristic nephritic retinopathy. At one point or another, signs and symptoms of diabetic neuropathy may further complicate the situation.

EDEMA, HYPOALBUMINEMIA AND HEART FAILURE. Especially striking is the development of a nephrotic syndrome, the criteria for which are proteinuria, hypoalbuminemia, hypoproteinemia and hypercholesteremia, together with the clinical evidence of edema. Albuminuria may be massive and the serum protein pattern markedly altered. Dependent and periorbital edema were present in eighty percent of Epstein and Zupa's³ patients with intercapillary glomerulosclerosis and, as expected, was associated with hypoalbuminemia (level of less than 3 gm. per 100 ml.) in three quarters of these. Progressive destruction of kidney tissue plus a combination of other factors may lead to edema formation. These include: 1) hypertension followed by congestive heart failure; 2) hyperproteinuria with hypoalbuminemia; 3) renal retention of sodium and water either on a primary renal basis or under the influence of the increased quantities of

aldosterone, or both. With progression of the nephropathy, pulmonary edema, pleural effusion and ascites may develop. Edema may also prove to be a completely unreliable clinical feature, being noted in thirty-four percent of Mendelow's⁷ cases of intercapillary glomerulosclerosis, but by far the greater number were dependent in type and associated with congestive heart failure. The importance of heart failure as a factor in the formation of edema is emphasized by the data in Epstein and Zupa's³ cases in which striking signs of congestive heart failure were noted in eighty-three percent at the time that edema was prominent. Nevertheless, edema or persistent profuse albuminuria should not be viewed lightly but should be interpreted as a possible warning of a serious impending renal complication.

The clinical picture of intercapillary glomerulosclerosis is worsened by urinary tract infections which lead to further renal damage. In addition to the consistent presence of proteinuria, many patients show evidence of renal infection as evidenced by microscopic pyuria, bacilluria and positive urine culture. Such findings were present in eighty-four percent of Crosley's² series of patients, despite the fact that genitourinary tract symptoms were reported in only twenty-eight percent. Pyelonephritis was present in seventy-six percent, as reported by Marble,⁸ in some as an obviously acute or terminal manifestation. Urinalyses and urine cultures should be made, the offending organisms isolated, and sensitivity studies performed. Based on the findings appropriate antimicrobial therapy is instituted. In addition, such pathologic and functional alterations lead to progressive renal insufficiency with massive proteinuria, hypoproteinemia, reversal of the A.G. ratio, anemia (resistant to treatment with iron) and constant azotemia.

The terminal weeks or months are characterized by persistent hypertension, uremia, and, often, cardiac decompensation and blindness or near-blindness. Death takes place sooner or later preeminently from renal failure or congestive heart failure, or less commonly from myocardial infarction. Of thirty deaths occur-

ring under the age of fifty years, reported by Root et al.,⁹ uremia was the cause of twenty-three. Thus, patients with advanced retinopathy and nephropathy are seriously threatened with death as well as blindness. Pulmonary edema may develop most unexpectedly following injections of albumin solution or acacia even in young diabetic patients.

LABORATORY FINDINGS. Hyaline and granular casts are frequently present in the urinary sediment which often contains doubly refractile intracellular lipids containing cholesterol and "Sudanophilic" fat. It should be emphasized that, while relatively simple to perform, this laboratory finding is non-specific in itself, characterizing the urinary sediment of patients with a nephrotic syndrome of any cause. Although a few red cells may be found in the sediment in the patient with diabetic nephropathy, in general, hematuria is not a feature of this condition but rather points toward glomerulonephritis. Serial examinations of the urinary sediment are important.

The specific gravity may be normal or elevated because of glycosuria. Proteinuria on the other hand has little influence on the specific gravity since 10 gm. of protein per liter of urine produces an increase of only 0.003. However, in a typical case, with a urine free of sugar, the specific gravity is usually fixed at about 1.010 as a result of tubular damage.

Renal function tests remain normal for a long period of time. Patients with nephropathy usually have markedly elevated non-protein nitrogen and creatinine levels. Epstein and Zupa³ noted an elevated non-protein nitrogen (40 mg. per 100 ml.) at some time during the clinical course in twenty-two patients (60 percent) and twelve patients died with a non-protein nitrogen greater than 100 mg. per 100 ml. The cholesterol level rises, the total protein falls and there is a reversal of the A/G ratio. The following electrophoretic pattern is typical of advanced intercapillary glomerulosclerosis: Decreased albumin and gamma globulin, increased α_2 globulin, elevated protein-bound carbohydrate, α_1 and

beta lipoprotein and lipoprotein in the SF 12:20 range increases. Terminally, anemia becomes progressively severe and renal acidosis may supervene.

SPECIAL RENAL FUNCTION STUDIES. Renal functional impairment may be demonstrated by clinical techniques which reveal elevation of the blood nonprotein (NPN), blood urea nitrogen (BUN) and plasma creatine as well as a decrease in phenolsulfonphthalein (PSP) excretion and in urea and creatinine clearances. The urea clearance tends to diminish gradually. Insulin clearance is a sensitive measure of the glomerular filtration rate. Tubular damage is evidenced by a decrease in the Tm_{PAH} . A mean reduction in glomerular filtration rate (GFR), as measured by inulin clearance, was found by Crosley² to be in accord with the frequent clinical occurrence of intercapillary glomerulosclerosis in diabetes. Furthermore, although the renal weights, as determined *in vivo*, are essentially normal, the ratio of Tm_{PAH} to such weights, as an index of renal scarring, is significantly reduced. Such persons actually have an elevated renal "threshold" for glucose.

The renal lesion of intercapillary glomerulosclerosis is not known to be reversible. However, the striking frequency of acute and chronic pyelonephritis, which complicated Epstein and Zupa's³ series of patients, for example, and undoubtedly contributed to renal impairment, suggests that prompt and vigorous treatment of urinary infections, as well as their prevention by avoiding unnecessary catheterizations, may postpone the appearance of renal decompensation in some patients and prolong life.

INSULIN REQUIREMENTS. Patients with diabetic nephropathy are said to become progressively susceptible to insulin hypoglycemia, so that the insulin requirement may drop to fantastically low levels for periods of time and some actually require no insulin whatsoever. The decrease of glycosuria may give only a false impression of amelioration of the diabetes, since, with progressing lesions, adrenal failure is suggested by the fall in excretion of 17 keto and 17 hydroxysteroids. In Epstein and Zupa's³ series, however, only six patients (sixteen per-

cent) had a substantial decrease in insulin requirement before death.

In contrast to some current statements in the literature that the patient with intercapillary glomerulosclerosis has not had ketoacidosis or diabetic coma prior to the development of nephropathy and does not contract these conditions during this complication,¹¹ we found that many attacks of ketoacidosis have characterized the past histories particularly in the younger patients so that ketoacidosis had become one of their more serious problems in management. There is no evidence in Runyon and Hurwitz's study¹⁰ to support the thesis of Zubrod, Eversole and Dana that a specific type of diabetes, characterized by amelioration of the severity of the disease and infrequent occurrence of acidosis, is associated with nephropathy *per se*. Ketoacidosis occurred at least as frequently in patients with as in those without the lesions.

The frequency of diabetic acidosis in patients with nodular glomerulosclerosis, therefore, did not differ from that observed in diabetic patients without this lesion. These observations support the previous statement that intercapillary glomerulosclerosis *per se* is not necessarily associated with amelioration of the diabetes. In conclusion, the alterations in insulin requirements are not causally related to the renal lesions.

Relation of Retinopathy and Intercapillary Glomerulosclerosis

There is growing evidence that the lesions of the glomerular vessels, characteristic of the early lesions, are the result of the same pathologic process occurring in the retina. A survey of the specific renal damage in the diabetic and the concept of its correlation with retinopathy was published by the author.¹² The hyalin deposits are of particular importance because of their relationship to similar deposits in the kidneys. Diabetic nephropathy usually follows, rather than precedes, the onset of retinopathy. Bryfogle⁴ reported that over one-half of the patients who had the most advanced eyeground findings had albuminuria, which was found in

only eleven of the eighty-nine diabetics with grade I and II retinal changes. In Root's series,⁹ the retinal lesions were invariably associated with albuminuria and the development of renal failure sooner or later. However, in sixty percent of Root's patients, hypertension was absent, and in fully one-third of the patients both albuminuria and hypertension were absent at the time of development of advanced retinopathy and remained so for periods varying from a few months to several years. Certainly, the two types of lesions tend to be associated with one another, but this is not invariably so.

It is true that in a significant number of patients with intercapillary glomerulosclerosis retinal lesions are present even *before neurologic lesions appear*. For example, definite eyeground changes were reported in all thirty-six patients with nephropathy whose fundi could be examined by Bryfogle.⁴ In seventeen patients the changes were of the most advanced grade, and in only three were the changes noted to be minimal. Thus, while nephropathy was always accompanied by retinopathy, the converse does not always apply. Not infrequently, a stage of nephrosis is already manifest at the time of diagnosis of retinopathy. In roughly forty percent of the patients studied by Root, Mirsky et al,¹³ albuminuria was present for some time prior to the discovery of retinopathy.

Case records are presented in the literature in support of the view that the nodular lesion of Kimmelstiel-Wilson is specific for diabetes. Two patients who died from renal failure were found to have severe nodular lesions at autopsy.¹⁴ Despite the absence of hyperglycemia and glycosuria premortem, a careful review of their clinical records, in addition to the autopsy findings, suggested strongly that they were diabetic; one of them had widespread hyalinization of the islets of Langerhans and the other had a partial destruction of the pituitary which could have masked a diabetic state. The cases presented by Freedman made it very likely that nephropathy caused the death of patients without diabetes ever having been diagnosed on the basis of symptomatology, blood

or urine sugar content. Accordingly, a normal blood sugar and a glycosuria throughout the observed course of a patient's illness are not sufficient to dismiss diabetes as a possible cause of retinopathy, neuropathy and nephropathy.

The assumption of a close relationship between intercapillary glomerulosclerosis and retinopathy is probably a valid one: both are specific vascular lesions occurring in diabetes. It is still debatable whether the pathologic processes are identical in both these lesions. Even if one accept a complete correlation between retinopathy and glomerulosclerosis such a correlation is not subject to confirmation with presently available clinical methods. A single retinal aneurysm permits the diagnosis of retinopathy, while the hyalinization of a single glomerulus cannot be detected clinically. Still, the retinal lesions are clinically useful in that they indicate the probability of a similar condition in the renal glomeruli. But we cannot conclude positively that the retinopathy precedes or follows the nephropathy or that there is any correlation between the degree of severity of these two lesions.

Pathogenesis

The cause of retinal and glomerular vascular lesions in individuals with long-term diabetes has been a matter of much discussion. There are those who maintain that, along with the diabetes, persons inherit a tendency to vascular damage which is related to diabetes chiefly, if not entirely, by virtue of association. According to this thought, the vascular damage is largely a matter of the passage of time and not due to inadequate control of diabetes. Proponents of this idea maintain, therefore, that strict control of diabetes is immaterial. They permit hyperglycemia and glycosuria, attempting only to avoid ketosis and frank symptoms of diabetes. Another possibility has been considered, viz., that both the diabetes and the vascular lesions may be the result of some common factor such as excess adrenal cortical hormones, so that the blood vessel changes are "concomitants" rather than "complications" of the diabetes. Thus a hereditary factor for "defec-

tive" blood vessels might be linked to the factor producing diabetes.

Although microaneurysms are almost exclusively found in diabetes they have occasionally been found in other disease processes. Once the microaneurysm was established as part of a specific disease entity, it followed that other organs should be examined in an effort to uncover similar vascular changes. Although the results have been rather unrewarding, one must bear in mind that the structure of the retina is peculiarly adaptable to study, while such techniques as flat retinal preparations are not applicable to other organs.

In the pre-insulin period the only diabetic who lived long enough to develop retinopathy were older persons with mild diabetes. As such they were likely to have arteriosclerosis and frequently hypertension. With the advent of insulin, the question as to the relationship of arteriosclerosis as a possible etiologic factor was answered, because some juvenile diabetics now lived long enough to develop retinopathy but still were not old enough to have arteriosclerosis. In many patients, classical diabetic retinopathy is found in a fundus completely devoid of hypertensive vascular changes. This is interesting because it suggests that hypertension *per se* plays little or no role in the development of retinopathy in the diabetic patient.

Whatever the age at the onset of the vascular lesions, all authors agree that the pre-existent diabetes is of relatively long duration. Bryfogle⁴ found that both retinal changes and nephropathy appeared only after diabetes had been present for many years; most commonly diabetes had been present for fifteen to thirty years, and beyond twenty years there was evidence of disturbed renal function in over twenty-eight percent of cases. In patients who had retinopathy Ralli, Street et al¹⁵ observed that diabetes was present in eighteen percent for less than six years. In opposition to this view, Hardin and Jackson¹⁶ were unable to demonstrate a relationship between duration of diabetes and the incidence and severity of retinopathy. This is important because, if retinopathy were an inevitable concomitant of

diabetes, it should have been observed with greater frequency and severity as the duration of the disease increased. Duration of diabetes is important only because it allows a longer period of time to be operative whatever the causative factor. In essence, neither retinopathy nor glomerulosclerosis can be correlated satisfactorily with the age of the patient or the duration of the diabetes.

The conception that increased capillary fragility is an etiologic factor for diabetic retinopathy has given rise to its attempted treatment with vitamin P. The accepted technique for the determination of capillary fragility is the use of a blood pressure cuff for four minutes at the level of 80 mm. of mercury. An area six cm. in diameter is then circled and the petechiae in this are counted. Petechiae in excess of twenty in this area should be considered abnormal. The petechial index increases with age in both diabetics and non-diabetics and in every age group. The petechial index also increases with the severity of retinopathy and parallels the degree of hypertensive vascular disease. Kornerup¹⁷ concludes, in patients with retinopathy and increased capillary fragility, that the latter depends upon the co-existing hypertensive vascular disease.

It is of practical importance that in patients whose diabetes starts at an adult or advanced age, one may expect a relatively early appearance of retinopathy. Either the patients in this age group have a more vulnerable vascular system, permitting the vascular damage to appear after a relatively short period, or they have had latent diabetes over a period sufficiently long for the vascular damage to appear shortly after the appearance of clinical diabetic symptoms.

The Role of the Adrenal Cortex and Vitamin B₁₂ in Diabetic Retinopathy and Nephropathy

Evidence linking the adrenal cortex with diabetic retinopathy as well as with renal lesions is exciting current interest. Following the advent of ACTH and cortisone, reports began appearing in the literature regarding the effects of

these hormones in diabetic patients. Retinopathy is aggravated by pregnancy, infection and the administration of ACTH. All three are associated with an increased activity of the adrenal cortex. During pregnancy where there is hyperactivity of the adrenal cortex, an exacerbation of retinopathy is often observed. Following delivery or the termination of pregnancy, a remission may occur.

The oxysteroid end products of adrenal cortical metabolism are found in increased amounts in the urine of diabetics with retinopathy. Dr. Janet McArthur has demonstrated increased urinary corticosteroid excretion in a young diabetic both when ketosis was induced experimentally by withholding insulin and when hypoglycemia was induced by slightly larger than needed doses of insulin. As one might anticipate because of their gluconeogenic action, prolonged administration of these hormones markedly influences the diabetic state. Thus, there is reason to believe that wide abrupt fluctuations between hyper- and hypoglycemia, and periodic development of ketosis, constitute situations of stress with attendant metabolic derangements that have far-reaching consequences.

The author¹² also feels that retinopathy in diabetics results from a metabolic disorder characterized by a hormonal imbalance. These few facts appear to implicate the adrenal cortex in the pathogenesis of diabetic retinopathy.

From the point of view of amelioration of nephropathy and retinopathy, it is regrettable that in none of the reports concerning the patients with pre-existing diabetes is it possible to determine that the supervention of Addison's disease—whether due to tuberculosis or so-called primary atrophy—led to anything more than a reduction of insulin requirement. Considering both Cushing's disease and acromegaly as disorders with surplus secretion of hormones that are "diabetogenic," it is interesting how rarely retinopathy has been encountered. Whether or not the well-known decline of insulin requirements in the advanced renal damage of diabetes reflects a disturbance in the

pituitary-adrenal functions remains to be studied.

The evidence in support of the adrenal and pituitary hypotheses has recently been reviewed in *Diabetes* by Becker and associates. Most of it is indirect or circumstantial in character with but meager supporting evidence in the field of clinical diabetes. A case reported by Poulsen has attracted wide attention. Without reviewing all the available evidence it appears that, although the possibility remains that the presence of these glands is a necessary condition for the development of the vascular lesions, the conception that the anterior pituitary or adrenal cortex plays an active role in the development of the vascular lesions needs further support. On the other hand, clinical evidence against a role of the adrenal cortex in the pathogenesis of the vascular lesions is the infrequency with which patients with Cushing's syndrome, a condition characterized by chronic hyperfunction of the adrenal cortex, have anything resembling diabetic retinopathy or intercapillary glomerulosclerosis.

It has also been suggested that vitamin B₁₂ has something to do with the production of retinal and renal lesions. Recently, the interrelationships of vitamin B₁₂, diabetes and adrenal cortical hormones have been explored. Experimental chronic alloxan diabetes in rats has been noted to induce B₁₂ deficiency and cause excessive retention of a test dose of this vitamin. Clinically, it has been found that diabetics with retinopathy behave like a cortisone-treated rat, excreting higher than normal amounts of B₁₂ in the urine. These findings lend weight to the supposition of a marked B₁₂ deficiency in the diabetic with retinopathy and are therefore consistent with the thesis of an increased adrenal cortical activity. Testosterone decreases adrenal cortical function by inhibiting ACTH. When this is given to diabetics with retinopathy, a marked reduction of urinary excretion of B₁₂ results, approaching the excretion level of diabetics without retinopathy.

Deficiency of vitamin B₁₂ does not, however, appear to be the sole defect in the pathogenesis of retinopathy and nephropathy. Thus,

massive doses of B₁₂ in rabbits failed to prevent the cortisone-induced renal lesion in one third of the animals. Furthermore, severe vitamin B₁₂ deficiencies in rats do not produce renal lesions resembling those described by Kimmelstiel and Wilson. It should be noted also that the vitamin B₁₂ deficiency present in patients with pernicious anemia is not usually associated with Kimmelstiel-Wilson lesions or retinopathy. It is obvious, therefore, that the retinal and renal lesions of the diabetic cannot be attributed wholly, if at all, to a vitamin B₁₂ deficiency.

EFFECTS OF CONTROL OF DIABETES. The question whether retinopathy and nephropathy may be prevented or delayed by efficient treatment of the diabetes has been the subject of much investigation. The possibility that the metabolic disturbances of diabetes are the cause of the vascular lesions is, of course, widely accepted. A series of papers from the Joslin Clinic emphasize that good control is of utmost importance in their prevention. This all-important matter of the relationship of *degree of control* of diabetes to the frequency and severity of vascular lesions and neuropathy has been of great interest and concern to us. Those who believe in physiologic control of diabetes claim that these lesions can be prevented or postponed indefinitely by stringent control.

With respect to man, valid evidence bearing on this subject is exceedingly difficult to obtain. It is necessary to have access to large numbers of patients with diabetes of fifteen to twenty years' duration, with different degrees of control and trustworthy records as proof that control is what it is claimed to be. Patients' records are notoriously unreliable and the records of office visits reflect only the situation of the moment at intervals of weeks, months or years. Very few physicians or clinics are in a position to meet the requirements for a truly significant study. Opinions differ as to the degree of control which is most desirable. At present we cannot define "control of diabetes" in accurate biologic or biochemical terms. In a strict sense, control of the diabetes should produce a complete reversion of the chemical and metabolic

elements and maintain a physiological balance. Control by this definition would, therefore, signify the maintenance of the same status that existed before clinical diabetes occurred.

In our experience, patients showing rapid development of retinopathy have been those in whom the control of diabetes has been the poorest, usually including multiple attacks of ketoacidosis. In Crosley's series,² a history of poor diabetic control is the rule, as reflected by repeated bouts of diabetic acidosis and insulin shock. At least one episode of acidosis was documented in fourteen (thirty-eight percent) of the thirty-seven patients with intercapillary glomerulosclerosis reviewed by Epstein and Zupa.³ Nine patients had repeated episodes of acidosis, and in four, acidosis was a terminal event. Of interest is the fact that all of the five patients with nephropathy in Joos' report¹⁴ all were under poor control. In Mendelow's series,⁷ retinopathy was found in sixty percent of ninety-seven patients with "poor" control and in only twenty-seven percent of seventy-three patients with "fair" control. In no case in Root's group⁹ can it be said that the patient had well-controlled diabetes. Severity of the disease and its lack of control were shown by the fact that among forty-seven patients diabetic coma of the severest type occurred ninety-three times. Thus, in the vast majority of patients in the above reports, a long duration of imperfectly controlled diabetes preceded the development of retinopathy and nephropathy.

On the other hand, the incidences of triopathy, notably retinopathy and nephropathy, is significantly less in patients who maintain excellent or good control of diabetes. The correlation between degree of control and retinopathy was found to be good by Hardin and Jackson et al.¹⁶ During the years 1949-1954, Root et al.⁹ studied four hundred and fifty-one patients from the Joslin Clinic with diabetes beginning in childhood or before the age of twenty-five years. Among thirty-two patients in this group who had maintained excellent or good control for twenty or more years, none had severe retinopathy and only one had Grade

III changes. In patients with excellent control, nephropathy did not occur in a single case. Among fifty patients, the incidence of nephropathy was two percent, which means exactly one patient. Among the sixty-eight patients in whom ophthalmologic examination had been carried out within recent years, twenty-three showed no retinal hemorrhages or exudates.

Since the opinion prevails in some quarters that retinopathy, as well as other vascular lesions, appears in the course of diabetes regardless of the form of treatment or the level of the blood sugar, and that nothing can be done to prevent it, some may ask, what is to be gained by its early detection except the satisfaction that a physician derives from knowing all he can about his patient? An understanding of this must await a better understanding of the pathologic physiology of diabetes and of vascular disease. Except for the time required for it to appear, the only constantly identifiable factor in the development of the vascular lesions is the degree of control of the diabetes. Whether evidence of excessive adrenal cortical function would be present in a perfectly controlled diabetic patient is unknown. If a diabetic could be controlled to perfection, i.e., normoglycemic for the whole of his life, he would possibly be no more prone to vascular lesions than a nondiabetic patient. At any rate most of the evidence available appears to indicate that lesions occur much more commonly in those whose management has been inadequate. This does not necessarily imply that glucose as such is responsible for the damage, but is meant to convey the idea that other factors associated with poor control, of which glycosuria is only one manifestation, may be pathogenetic in this regard.

If one accepts the premise that the metabolic aberration of diabetes is the cause of the retinopathy and nephropathy, then it becomes paramount for the physician to devise a plan of treatment which will provide the best possible control of diabetes. Unless the goal is set high, the result secured is almost certain to be unsatisfactory. Although perfect control

for a lifetime appears at first to be a practical impossibility, the only alternative is chiefly one of controlled genetic factors through better selection in marriage.

Retinopathy may occur early in certain patients, may occur before a diagnosis of diabetes is made and in rare instances may be unilateral. The fact that retinopathy and nephropathy are sometimes seen in patients with obviously mild diabetes has cast doubt on the theory that they are the consequence of poor diabetic control. It is true that there does not appear to be any direct correlation between the use of insulin or the frequency of acidosis or coma and the occurrence of ocular and renal lesions in diabetes. While recent studies have demonstrated that these lesions are less likely to occur or to be severe, the better the diabetic control, excellent control does not always preclude their development. Nevertheless, it is necessary to repeat here an earlier statement, with which most authorities agree, that, although some instances of retinopathy occur in mild diabetes, and in others in which it is absent despite long standing poor control, the great majority of patients with serious vascular lesions are those who have had large amounts of glycosuria much of the time for many years.

Treatment of Diabetic Retinopathy and Nephropathy

Any attempt to evaluate specific therapy for diabetic retinopathy and nephropathy must overcome formidable obstacles. The basic diabetic lesions in the retina, the microaneurysms, must be affected by the therapeutic agent. These are difficult to count and there are perhaps fifty to one hundred microaneurysms too small to be seen with the ophthalmoscope for every one that can be seen. Moreover, fundus photography is not particularly helpful in counting microaneurysms, because they are too small to be easily seen on a photograph and the peripheral fundus cannot be photographed. Since microaneurysms eventually become hyalinized they become ophthalmoscopically invisible. Unfortunately, the retina cannot be biopsied and examined microscopically. These are a

few reasons why evaluation of any therapy for the microaneurysms is almost impossible.

How then should a diabetic who shows the vascular changes be handled? In the absence of any more specific therapy, multivitamins, vitamin B₁₂, methiscol, C.V.P. (with ascorbic acid), hesperidin and rutin have all been employed. Many ophthalmologists are using rutin, ascorbic acid, hesperidin, vitamin P complex and testosterone. In forty patients who had diabetic retinopathy in various stages, rutin was given by Kornerup¹⁷ in dosages of 150-300 mgms. per day. Only one patient, a thirty-seven-year-old man, twenty-eight years-of-age at the onset of diabetes, showed improvement. Another patient showed no objective improvement but the visual acuity increased. In the remaining thirty-eight patients, the visual acuity and the fundus changes were either unaltered or had deteriorated during the P-vitamin treatment. There is good evidence that rutin and other orally administered flavonoids are destroyed by the intestinal flora. Also, it has been found that administration of rutin, esculin and adrenoxyl intravenously have no effect on capillary fragility. All in all, treatment of diabetic retinopathy with preparations aimed at decreasing capillary retinal hemorrhage has been disappointing.

Our chief aim in therapy is prevention of the vascular lesions. The most optimistic ray in the clouded sky of therapy is the observation of the reversability of retinal pathology. Although it is more difficult to reverse the vascular damage once it becomes manifest, frequently one encounters cases in which progression stops and in which hemorrhages and exudates are absorbed. Attempt at direct treatment of the vascular pathology thus far has been unsatisfactory. Also, roentgen therapy to the affected eyes has been of limited or no value.

The Effects of Bilateral, Total Adrenalectomy and Hypophysectomy in Diabetics with Vascular Disease

Based on the hypothesis that certain hormones play either an active or a permissive

role in the development of the vascular lesions, a few investigators have directed their attention toward depressing or obliterating the unopposed factors of the adrenal, the pituitary, or both which result from the insulin deficiency. Such trials have included use of adrenal steroids, total or sub-total adrenalectomy, and more recently, hypophysectomy or pituitary stalk section. More recently, medical adrenalectomy has been attempted with large doses of cortisone and even more recently by use of amphinon.

In a case reported by Graef,¹⁰ the retinopathy was arrested for fifteen months following adrenalectomy, although some advance occurred in the concurrent mild nephropathy. There were no signs of progression after the operation in Luft's et al²⁰ twelve patients. In general, adrenal steroid therapy or some form of adrenalectomy are usually futile, particularly when insulin sensitivity is increased to such a point that the majority of patients die of insulin shock. Graef's second patient, for example, had no significant improvement; vitreous hemorrhages continued to occur in the surviving eye. The completely adrenalectomized patient, without any mineralocorticoid hormone (probably aldosterone from the zona glomerulosa), easily goes into electrolyte imbalance and shock without adrenal replacement therapy.

There is much evidence to suggest that hypophysectomy might influence the course of diabetic retinopathy. Hypophysectomy removes the source of corticotropin and causes adrenal atrophy and hypofunction. Hypophysectomy has been performed in an attempt to arrest the progress of retinopathy and nephropathy. In certain instances, the results have been encouraging and have been associated with amelioration of the diabetes, loss of edema, and return of visual acuity. As shown in Luft's series,²⁰ a marked progression of the diabetic retinopathy was observed in one case after a short period of improvement. In the remaining nine cases, no definite signs of progression were observed. On the contrary, improvement in visual capacity and/or eye-ground changes were noted in most cases. Results in twenty

patients aged between twenty and thirty-three years are presented and evaluated by Luft et al. Death occurred in seven patients between one day and nineteen months after operation. In the surviving patients, the operation was followed by a drop in blood pressure and a decreased heart volume. A definite decrease in albuminuria and in glomerular filtration rate was achieved, but the effect on renal plasma flow remained unchanged. This can be considered to indicate a favorable effect on renal circulation. Hypophysectomy was not beneficial in a few patients with proliferative retinopathy observed by Root, Mirsky and Ditzel.¹³

For critical evaluation of the effectiveness of hypophysectomy and adrenalectomy in modifying the course of retinopathy and nephropathy more studies of such patients are needed. Maintenance after hypophysectomy is safer. The instances of hypophysectomy have no electrolyte imbalance even when tested by a low-salt diet without cortisone therapy. The increased renal excretion of sodium chloride which uniformly follows adrenalectomy, and sometimes follows hypophysectomy, might actually be of some benefit to patients with intercapillary glomerulosclerosis associated with hypertension and edema. Such benefits, however, does not imply a favorable modification of the underlying lesions. Surgical hypophysectomy seems a radical procedure with its high case fatality rate and substitution of a disease as difficult if not more difficult to control than diabetes itself.

It is to be hoped that some method less radical and more hopeful than adrenalectomy or hypophysectomy will be found to arrest or prevent the vascular complications represented by these patients. However, the removal of a vital organ such as the pituitary must be regarded as an experimental method and should be reserved for those patients whose renal function is still greater than fifty percent of normal. It need be emphasized that, at present, hypophysectomy is not being recommended for patients with diabetic retinopathy except as a radical, experimental procedure of unproved value. Anti-adrenal or antipituitary agents in the form

of estrogen or progesterone therapy or radiation of the pituitary may achieve "medical adrenalectomy" or "medical hypophysectomy" by reducing the secretion of those hormones or substances which aggravate or contribute to the diabetic state. Testosterone is known to inhibit ACTH production and indirectly adrenal cortical hormone formation. Testosterone propionate, 50 mgms. combined with estradiol benzoate, 1 mgm., intramuscularly at weekly intervals may be tried. In order to avoid masculinizing effects, not more than 300 mgms. of testosterone per month should be given to a woman. Whether or not new and better methods of irradiation of the pituitary or the hypothalamus may be helpful in the problem discussed is also worthy of further investigation.

Effect of Diabetic Control

We now come to that form of therapy of diabetic retinopathy and nephropathy which is not specific for the conditions *per se* but rather falls into the category of prevention. Its adherents believe that prevention of vascular pathology can be achieved through rigid control by measured diet, regulation of insulin and frequent visits to the physician. Thus, Marble⁸ has the general clinical impression that patients who are most carefully treated year in and year out develop the fewest vascular lesions. Conversely, those patients whose control has been poor show the greatest number and most severe lesions. The author likewise believes that when one is able to maintain constantly a sugar-free urine vascular lesions generally can be reduced to the level prevailing in nondiabetic individuals. Furthermore, it is generally agreed that control can only be achieved by regular medical attendance.

With regard to the actual standards of diabetic control, two distinct schools of thought have developed. One promulgates ideal control of the blood sugar and glycosuria throughout the twenty-four hours. The other maintains that the intermittent occurrence of glycosuria is of no great significance and insulin is given in sufficient amount to prevent clinical

symptomatology. Although definitions of diabetic control are at some variance, the following desirable objectives are probably acceptable to everybody: 1. Maintenance of physical and mental well-being and normal weight; 2. Prevention of polyuria and glycosuria insofar as possible; 3. Prevention of vascular lesions and neuropathy.

From follow-up studies in young patients after twenty years of diabetes, the evidence appears quite convincing that the typical sequelae in the eyes and kidneys may be postponed by early, persistent and continuous control of the diabetes.¹¹ Concrete data to support this view is difficult to assemble because, so far it has been impossible, even by the most meticulous treatment available, to maintain physiologic conditions in the diabetic over a period of twenty or more years. With the above in mind, it is obvious that one must speak in relative rather than absolute terms.

There is no doubt that the well regulated patient presents fewer problems than the poorly regulated individual. Moreover, one cannot ignore the fact that, from a clinical standpoint, many authors stress properly administered diabetic therapy as the complete answer to diabetic sequelae. Certainly, no one has suggested that normalization of the carbohydrate metabolism is harmful. On the other hand, rigid treatment is no guarantee against either retinopathy or nephropathy but is the only weapon available. Therefore, at the present time, the physician is obligated to provide the strictest possible control of the diabetes.

As to the renal pathology, restricted activity, a low-sodium diet, adjustments in the protein intake when necessary, ammonium chloride and mercurial diuretics bring about only temporary improvement. What is really needed is a drug which has a specific ability to decrease adrenal cortical hormone production, either directly or through ACTH inhibition, similar to the effect of propylthiouracil on the production of thyroxine. If such a drug were available, controlled suppression of adrenal cortical activity might be beneficial in the prevention of retinal and renal lesions. Still, when the etiology of a

disease is unknown, it cannot very well be treated satisfactorily. Consequently, we do not as yet have the final solution to the problem of retinopathy and nephropathy.

PROGNOSIS. It is a distressing fact that, although hemorrhages and exudates may occasionally clear to some degree, the pathologic process in the eyes and the kidneys usually progresses. Patients with punctuate hemorrhages have a fair prognosis but those with engorged veins have a tendency to perivascularitis or thrombosis leading to massive vitreous hemorrhages. Repeated episodes of vitreous hemorrhage cloud the vitreous and cause sudden loss of vision. So long as fovea is unaffected vision may improve temporarily as vitreous blood is removed. However, once this stage has developed the course usually is progressively downhill.

A follow-up of a series of four hundred and fifty patients who had retinitis proliferans by Root and Barclay²¹ showed a considerable group of patients, notably those forty years and

over, in whom this process remained stationary for as long as five to fifteen years before serious loss of vision occurred. In contrast to this group, however, it must be admitted that in the majority of patients with retinitis proliferans, the condition progresses to serious loss of vision, nearly complete blindness, and in a few cases, loss of both eyes from hemorrhagic glaucoma.

Contracture of the scar tissue bands producing inoperable retinal detachment ultimately completes the loss of vision.

In a young group of fatal cases, the average duration of life after albuminuria was first recognized was five years; whereas the average duration of life for the living cases in this same group exceeded that of the fatal, for it was six years. All agree that when the triad of retinopathy, symptomatic nephropathy and diabetes is encountered together, the prognosis is grave. Once, however, the state of nitrogen retention has been reached, even the best diabetic control usually has no influence on the course.

Conclusion

Our knowledge of the etiology and pathology of diabetic retinopathy and nephropathy has broadened and certain trends towards prophylaxis of the disabling diabetic vascular lesions are suggested. No longer need the retinal and renal lesion be regarded as inevitable. Although good diabetic control alone is not always suf-

ficient to prevent these lesions, the future may bring ways to minimize stress and adrenal cortical steroid production. It is to be hoped that the scope of the National Diabetes Detection Drive will materially aid in discovering individuals early enough to head off the onset of these vascular lesions.

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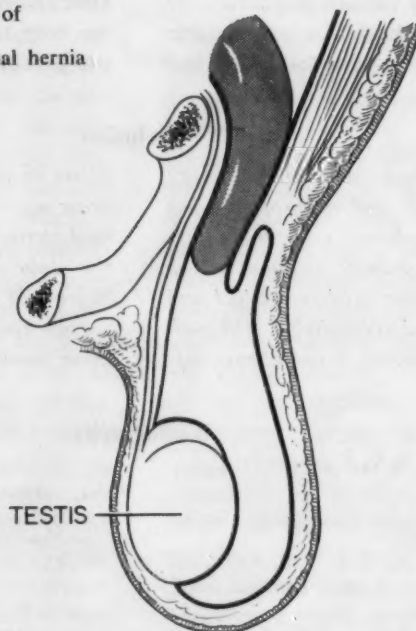
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The Menopausal Syndrome

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The menopause is provoked by decreased ovarian function resulting in an estrogen deficit and increased excretion of pituitary gonadotrophin.^{1,2} Novak³ estimates that ten to fifteen percent of menopausal women have symptoms severe enough to require physiologic treatment. He believes that occurrence of vasomotor phenomena is the most significant symptom diagnostically; other symptoms commonly encountered during menopause are functional and not directly related to ovarian deprivation.

Biologic replacement therapy with estrogens is accepted treatment for relief of symptoms but when given alone, these agents tend to cause endometrial proliferation and bleeding.¹ Androgens, which are also used in the menopause for their general anabolic effect, may cause virilization. Therefore, estrogens and androgens frequently are given in combination, so that each type of hormone will neutralize the undesirable effects of the other.^{1,2}

Moravec and Moravec³ studied several combinations of estrogens and androgens, in various dosage gradients, among a group of one hundred and one menopausal patients. The optimal combination proved to be 0.02 mgm. ethinyl estradiol and 5 mgms. methyltestosterone (Gynetone®). On one or two of these tablets daily, eighty-one percent of the patients experienced relief of symptoms.

Neither uterine bleeding nor virilization occurred on this regimen.

We have used this combination in menopausal patients, with good results.⁴ The low dosage of both hormones relieved symptoms without provoking the side effects which tend to occur if either agent is used alone.

Nervous symptoms associated with the menopause are extremely common. Since some women require medical attention during the menopause and others do not, and there is presumably no difference in the hormonal change between these two groups, the emotional component probably influences the severity of symptoms.¹

Loss of ovarian function requires a psychologic as well as a physiologic adjustment.² Simple reassurance often is all that is required but occasionally sedatives or tranquilizers are indicated.

Ernst and Snyder⁵ treated thirty-four menopausal patients, in whom tension or anxiety was the chief complaint, with perphenazine (Trilafon®) in divided doses of 8 to 24 mgms. daily. Emotional symptoms were relieved in twenty-nine of these patients. Side effects occurred in five who received high dosage but did not occur with daily doses of 16 mgms. or less.

Harer⁶ administered perphenazine, 12 mgms. daily in three divided doses, and estrogenic

TABLE 1 INCIDENCE AND SEVERITY OF SYMPTOMS

SYMPTOMS	NOT PRESENT	MILD	MODERATE	SEVERE	VERY SEVERE
Nervousness, anxiety	0	7	13	19	8
Flushes and chills	0	9	14	15	9
Excitability	1	14	20	8	4
Fatigability, lassitude	1	9	11	3	2
Irritability	1	9	16	17	4
Depression, crying	2	15	12	14	4

TABLE 2 RESPONSE TO THERAPY

DEGREE OF INVOLVEMENT	NO. OF PATIENTS	EXCELLENT	GOOD	RESULTS	
				FAIR	POOR
Very severe	1 (2%)	—	1	—	—
Severe	27 (58%)	13	13	1	—
Moderate	17 (36%)	4	12	1	—
Mild	2 (4%)	1	—	—	1
Summary	47	18 (38%)	26 (56%)	2 (4%)	1 (2%)

hormones to forty-five patients in surgical menopause, thirty-two in natural menopause and twenty-four with postmenopausal symptoms. There were only nine therapeutic failures and no toxic reactions. He considers perphenazine to be an excellent adjunct to gynecologic therapy for patients in whom emotional symptoms complicate the primary disease.

Materials and Methods

Recently, an experimental drug containing a balanced estrogen-androgen combination for physiologic replacement and perphenazine for reduction of the emotional component was made available for clinical trial in the menopausal syndrome.* Each tablet contained 0.04 mgm. ethinyl estradiol, 10 mgms. methyltestosterone, and 8 mgms. perphenazine; half of the

total dose was in the outer layer for immediate release and the remaining half was in the coated core of the tablet for release approximately four hours after ingestion. Since the rationale for the use of each of the components has been established, trials of the combination tablet were warranted.

Menopausal patients presenting both vasomotor phenomena and significant emotional symptoms were selected for treatment. Most patients had other complaints associated with the menopause. The incidence and severity of presenting symptoms are shown in Table 1.

The series consisted of forty-seven patients ranging in age from thirty to seventy-seven years; the mean average age was forty-nine years. Five patients were sixty years or older and nine were thirty-nine years or younger. Most patients were in the natural menopause but in a few the menopause followed gynecologic surgery. Breast and pelvic examinations

* Clinical research supplies were provided by R. Richard McCormick, M.D., of the Division of Clinical Research, Schering Corporation, Bloomfield, New Jersey.

yielded essentially negative results in all patients. Many had been treated previously with other drugs which had failed to provide significant relief of symptoms.

All patients initially received a single injection of 1 mgm. estradiol benzoate and 20 mgms. testosterone propionate. Oral therapy was begun with one tablet daily for one month, after which time patients were placed on maintenance therapy of one tablet twice weekly. If symptoms recurred on reduction of dosage, daily administration was resumed for two weeks and these patients were subsequently maintained on one tablet three times weekly.

Results

Results were graded as excellent if all symptoms were relieved, good if only one symptom persisted, fair if there was some relief, and poor if no improvement occurred. The response to therapy, correlated with the total degree of involvement, is shown in Table 2.

Complete or major relief of symptoms occurred in ninety-four percent of the patients, usually seven to fifteen days after therapy was begun. Many patients commented on the fact that sleep improved. There appeared to be no side effects and there was no instance in which depression worsened during therapy.

Summary

A combination of estrogen, androgen, and perphenazine provided complete or almost complete relief of physical and emotional symptoms in forty-four of forty-seven patients in

natural or surgical menopause. Results appear to be significantly better with this combined approach than when hormones are used alone.

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Spinal Anesthesia for Normal

Spinal anesthesia has been used for obstetrical procedures for over fifty years. The simplicity and ease with which a lumbar puncture and spinal anesthesia can be accomplished, however, favored its indiscriminate use by personnel unfamiliar or indifferent to the possible complications of the technique. Such a situation resulted in a high incidence of morbidity and mortality as a consequence of the improper preparation of the spinal equipment, an inadequate understanding of the physiological effects of a spinal block, and the faulty management of the initial and delayed complications associated with the anesthesia. With proper attention to the details necessary for satisfactory and uncomplicated spinal anesthesia, increasing evidence has accumulated to indicate that this technique can contribute appreciably to lowered maternal and perinatal mortality and morbidity.

The accomplishment of a regional anesthesia through the subarachnoid injection of cocaine was first reported, in 1899, by Bier in Germany,⁴ and several months later by Tuffier in France.¹⁰ Only a few years passed before this technique was being utilized for the anesthesia in operative obstetrical procedures. Among the first reports were those of Guinard and of Malartic in Paris, in 1901. In 1902, Hopkins in this country, reported on the use of spinal anesthesia for a cesarean section.⁸ Interestingly enough, the case was that of a twenty-eight year-old primagravida with a pelvic deformity resulting from childhood

poliomyelitis, generally recognized today as a contraindication to spinal anesthesia. The absence of post-anesthetic headache and vomiting was attributed by the author to the fact that Hopkins had used, as a solvent for the cocaine crystals, spinal fluid rather than tap water, as described by previous writers.

Little interest was demonstrated in the use of spinal anesthesia for vaginal delivery until Pitkin, in 1928, reported on the use of procaine made hyperbaric with glucose solution.¹³ Cosgrove, in 1930,⁵ reviewed the first sizable series of seventeen hundred and eighty-eight deliveries with procaine spinal anesthesia, and also presented a preliminary report on the use of dibucaine (Nupercaine®), as a longer acting agent. During the following fifteen years, only occasional reports are noted in the literature. A series of papers from 1945 to 1949 by Adriani and his coworkers^{1,11,12,14,15} and one by Andros,² in 1948, helped to establish the contribution of the low spinal technique to obstetrical anesthesia. During recent years, spinal anesthesia has been gaining increasing acceptance in obstetric practice, and numerous reports of many thousands of cases have been presented in the literature.

Neuroanatomic Considerations

Of importance to the physician who uses spinal anesthesia for vaginal deliveries is a fundamental understanding of the anatomy involved in the performance of a spinal tap, as well as the neuropathways concerned with

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Vaginal Delivery

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parturition. The first of these necessitates a knowledge of the *lumbar vertebral column, its ligaments, and its contents*. The second entails an appreciation of the *sensory and motor innervation of the uterus, the birth canal and the adjoining tissues* that play either an active or a passive role in the act of birth.

THE VERTEBRAL COLUMN, ITS LIGAMENTS AND ITS CONTENTS. Viewing the vertebral column from a direct posterior view and stripped of its soft tissue coverings, midline foramina are easily noted between each of the lumbar vertebra. This is in contrast to the absence of such landmarks in the thoracic region. These midline foramina are correctly referred to as the interlaminar foramina, and as such are the route through which a needle is introduced in performing a spinal tap. Figure 1a depicts a typical lumbar articulation, showing the location of the interlaminar foramen and its bony outline. Two-thirds of its circumferential boundary is formed by the inferior articulating processes of the upper vertebra, while the remaining third consists largely of the laminae of the lower vertebra. Using the conventional midline approach by way of the interlaminar foramen, the spinal needle, after piercing the skin and subcutaneous tissue, penetrates three ligaments prior to reaching the dura. In order of proximity from the skin surfaces, these are the supraspinous ligament, the interspinous ligament, and the ligamentum flavum (Figures 1b, 1c). Between the last named ligament and the dura is the epidural space, which in the lumbar region is several millimeters in depth. The width of the first two ligaments is no greater than the width of the

spinous processes to which they are attached. The ligamentum flavum, however, extends laterally and attaches to the capsules of the articulating processes, thus providing a cover for the entire interlaminar foramen.

Caudal to the level of the first lumbar vertebra, where the spinal cord ends, the sub-arachnoid space ceases to be an annular space and becomes practically circular in section, with a diameter of about 15 mms. To avoid damage to the cord, the spinal tap is performed customarily and preferentially at a level below that of the first lumbar interlaminar space.

THE SENSORY AND MOTOR INNERVATION OF THE UTERUS, BIRTH CANAL AND ADJOINING TISSUES. The organs and tissues involved in the act of parturition can be divided into three general groups, according to their sensory innervation: 1) the body of the uterus, 2) the lower uterine segment, cervix and upper vagina, and 3) the lower vagina, perineum and external genitalia.

The sensory fibers from the contractile part of the uterus (the body) accompany the pelvic efferent sympathetic fibers. By way of the pericervical nerve plexus, the inferior hypogastric and preaortic plexus, and the upper lumbar paravertebral sympathetic chain, they eventually come to enter the spinal cord through the posterior roots of the eleventh and twelfth thoracic and first lumbar segments. The nerve cells of these fibers are found in the respective posterior root ganglion. Pain fibers arising from the retractile part of the uterus (lower uterine segment), the cervix and the integument of the upper vagina follow the course of the sacral parasympathetic fibers from the

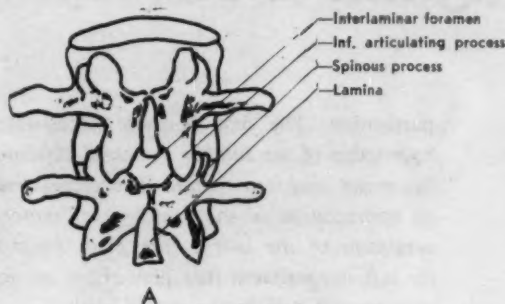
second, third, and fourth sacral segments (nervi erigentes). Such fibers are stimulated by the thinning out of the lower segment of the uterus, as well as by the progressive dilatation of the cervix during the first stage of labor.

With the onset of the second stage, an additional component of pain arises from distortion of the soft tissue and mucosa of the lower vagina, the external genitalia (including the labia, clitoris and urethral meatus), the perineum, rectum and perirectal tissue. Pain receptors located in these tissues convey their impulse to the central nervous system largely by way of the pudendal nerve, which arises from the anterior primary divisions of the second, third and fourth sacral nerves. In addition, however, pain impulses from the labia and perineum are also carried over the ileo-inguinal nerve (L-1), the spermatic external branch of the genito-femoral nerve (L-1, -2), and the perineal branches of the posterior femoral-cutaneous nerve (S-1, -2, -3).

From the above description of the sensory innervation of the uterus and birth canal, it is apparent that virtually complete anesthesia for the act of birth will be obtained following a spinal block which reaches a level of the tenth thoracic segment. When the spinal level fails to rise above the first lumbar segment, the patient will continue to experience the pain of uterine contractions, but will be freed of those pain components arising from cervical dilatation, and from distortion of the lower birth canal and its adjacent soft tissues.

Motor impulses responsible for smooth muscle contraction of the uterus arise from preganglionic sympathetic neurons located in the intermediolateral cell columns as high as the sixth thoracic spinal segment. Such impulses leave the cord, and by way of the respective white rami communicantes, synapse with secondary neurons in paravertebral and terminal plexuses. A spinal block, limited in distribution to the level of the tenth thoracic segment, will spare the large majority of uterine motor impulses. Such a level of spinal anesthesia will, in addition, allow active contraction of the upper abdominal and intercostal

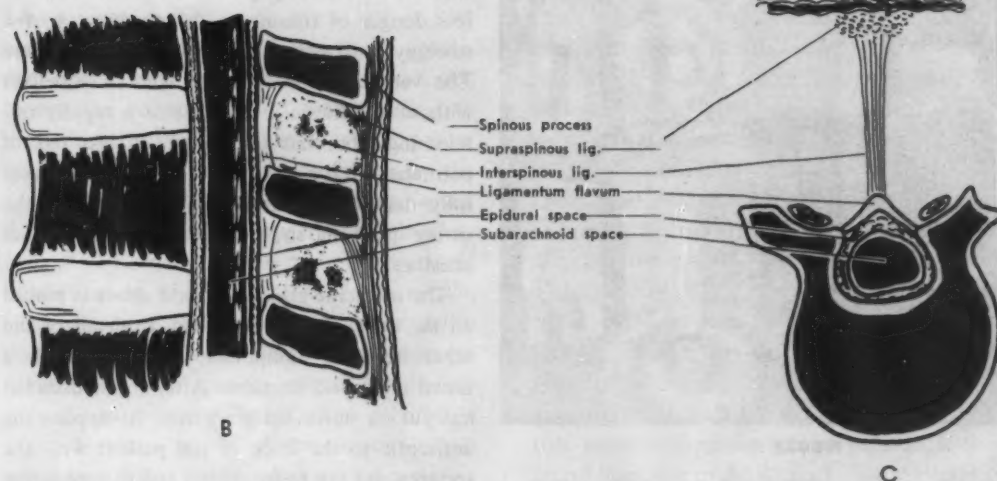
FIGURE 1



skeletal muscles, thus making possible a volitional "bearing down" effort during the late, second stage of labor.

Preparation of Equipment

The first and one of the foremost considerations by the spinal anesthetist is the proper preparation of the equipment. It should be constantly borne in mind that the agents used are placed in direct contact with the spinal cord and spinal nerves, and with the meninges of the central nervous system. Obviously, these agents and the materials used for injecting them should be given the most meticulous and exacting care possible. It is imperative that we avoid every possible source of chemical or bacterial contamination. All needles and syringes used on spinal trays must be used for this purpose only, and not interchanged with those utilized for other purposes in the operating or delivery rooms. In this way we eliminate the chance that even traces of drugs other than spinal anesthetic agents might remain on these items. Only nurses who have been duly impressed with the importance of this function are suited to prepare the spinal trays; these should be a specifically designated few in each institution, and not any casual or part-time



nurse who happens to be assigned to the area on a given day.

Since time is of the essence in preparing for the administration of many obstetrical spinal blocks, the spinal tray contents are kept as simple as possible, so that there will be a minimum of delay in locating each item. The equipment includes two 2-cc. syringes, two 20-gauge intravenous needles, a 30-cc. medicine glass, a Kelly-clamp or similar type forceps, six 4 x 4 gauze sponges, one 26-gauge Greene⁷ (pencil) pointed spinal needle and an ampule of the spinal anesthetic solution, (Figure 2). The medicine glass and Kelly-clamp are used for preparing the patient's back with antiseptic solution, and the cleaning of these items after use of the tray must never be done in the same pans and solutions used for the other items. The needles and syringes should be cleaned well with water alone, and never with soap or detergent. The detergents are lipophilic and neurolytic agents, and the smallest trace remaining on a needle or syringe might be transported into the subarachnoid space and result in permanent neurological damage.^{9, 10} All items are then rinsed in fresh ether, which is also used to irrigate well the lumens of the needles. The needles are kept from sliding

around on the tray during sterilization by threading them through one of the gauze sponges, and the syringes are wrapped separately in one of them. Needles are autoclaved with the stylettes out and syringes with the barrels out so that the high-pressure hot water vapor of the autoclave can contact all surfaces. The entire tray including the spinal ampule is wrapped and autoclaved for fifteen minutes at 250°F. at twenty pounds pressure. It is most advisable to attach some type of color indicator such as Diack[®] to each tray to give assurance that proper sterilization has occurred. Additional spare needles may be kept sterile in individual test tubes, and spinal ampules in sealed envelopes.

Technique of Spinal Anesthesia

A prerequisite for the administration of a spinal anesthesia is the availability of a physician to observe and care for the patient after the block. The ease with which a drug may be injected into the subarachnoid space has served indirectly to become the foremost hindrance to the utilization of this technique because of

* Diack[®] Controls are manufactured by the Research Laboratory of Smith & Underwood, Royal Oak, Michigan.

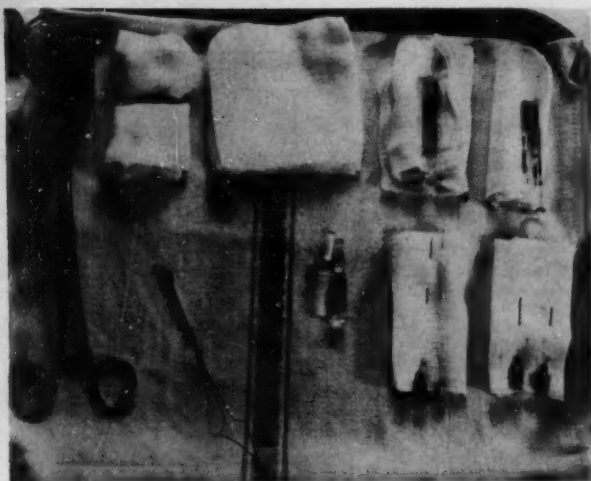


FIGURE II

the frequent development of untreated side-effects. Practically all of the immediate complications of spinal anesthesia can be readily managed. It is necessary, however, that they first be recognized, and this can be assured only if the patient is constantly attended during the period of effect of the block.

The choice of agent for low spinal anesthesia for most terminal deliveries is lidocaine (Xylocaine®).† This drug is prepared in 2 cc. spinal ampules containing lidocaine 5 percent and glucose 7½ percent, resulting in a specific gravity of 1.03. A preanesthetic blood pressure should be checked and recorded before the administration of any spinal anesthesia. The patient is placed in the lateral position, with the delivery table in five degrees reverse Trendelenburg position. A minimal incidence of undesirably high spinal anesthesia has been found with this position. Patients and assisting personnel have unanimously commented about the relative comfort for all when the lateral position is used for the pregnant patient at term. There is likewise no resistance to the

progress of the head of the fetus as may be found in the sitting position, and so there is less danger of trauma to the newborn, to the strongly contracting uterus, or to the perineum. The very occasional patient who may deliver without anesthesia in the case of a rapidly terminating labor has suffered much less risk of permanent harm than the patient who forcefully delays the delivery of the head via the sitting position so that she may receive an anesthesia.

The medicine glass described above is placed on the edge of the tray, away from all of the other items of equipment, and filled with a tinted antiseptic tincture. After the anesthetist has put on sterile rubber gloves, he applies the antiseptic to the back of the patient with the sponges and the Kelly-clamp, and then removes the latter from his tray. Excess solution is wiped from the back before attempting the lumbar puncture. Care must be taken that not one drop of the antiseptic solution contacts any of the equipment used for the spinal block. The lumbar puncture is accomplished with a 26-gauge Greene-pointed needle. The use of this needle has resulted in an incidence of post-spinal headaches of less than one percent, and severe, persistent headaches are almost non-existent. Thus, one of the former complications of spinal anesthesia has been virtually eliminated. With practice, it is possible to acquire facility at introducing this needle without any introducer needle, though in patients with backs with heavy, tense musculature, in which the landmarks are difficult to palpate, the 20-gauge needle used as an introducer may be of considerable help. Care must be taken to place the 20-gauge needle carefully so that an inadvertent lumbar puncture is not performed with it. Either the space between L-2—L-3 or L-3—L-4 may be used, since the level of the anesthesia can be adequately controlled through proper positioning of the patient. Due to the small lumen of the spinal needle, we do not look for nor wait for a spontaneous flow of spinal fluid from the hub. A light is placed behind the anesthetist and directed toward the patient. Upon entry of the needle point into

† Xylocaine® is the registered trade mark for lidocaine, manufactured by Astra Pharmaceutical Products, Inc., Worcester, Massachusetts.

the subarachnoid space, a glistening bead will appear deep within the hub of the needle. The 2-cc. syringe containing 50 mgms. (1 cc.) of the spinal lidocaine is connected to the needle, and aspiration of spinal fluid is attempted. Although the volume of fluid drawn back into the syringe is small and inconsequential, proper placement of the needle is confirmed by the appearance of eddies of the isobaric spinal fluid in the solution of hyperbaric lidocaine-glucose. It is not advisable to inject the agent unless certain of the position of the needle; since otherwise it is possible that the entire dose might be placed directly on or into a nerve rather than into the spinal fluid, where it is diluted and distributed. The solution is injected over a period of five seconds. It is usually advisable not to inject during a uterine contraction. However, in a situation when time is of the essence, it may be permissible to do so as long as we are fully aware that the level of a spinal anesthesia given with a hyperbaric solution can be controlled through proper positioning of the table.

Immediately after injection of the spinal solution, the patient is turned gently to the supine position. A pillow placed under the head will make the patient comfortable, but it should be emphasized that the acute flexion of the head at the neck which we frequently see will give no assurance that the level of the spinal anesthesia will not rise to undesirable heights. At this time, the most important consideration should be that of keeping the spinal column of the patient in a reverse Trendelenburg position, just as it was in changing the position from the lateral to the supine. The blood pressure should be checked immediately, and an intravenous infusion started with no smaller than an 18-gauge needle.

It is important at this time to ascertain the level of the anesthesia. The optimum extent of spinal anesthesia to obtain for most uncomplicated vaginal deliveries should be to the level of T-10 (the umbilicus). The patient must be made aware of the information the anesthetist is trying to obtain, and comparisons are then made of responses to firm pressure

with a sharp object (such as a needle or pin) applied to anesthetized and unanesthetized areas of skin. An area of the upper torso is usually used as a control, and this is compared with multiple other points, beginning with the lower abdomen and working cephalad. The patient should not be asked whether or not she "feels something" on the tested area, but rather whether or not this pin-prick is as sharp as that in the control area. For at least several minutes, the patient will be aware of some sensation regardless of where she is tested, and the former type of questioning will frequently mislead the anesthetist as to the distribution of the anesthesia. A beginning analgesia or diminishing sensitivity will result in true anesthesia within a brief period. If it is found upon the original check that the level of anesthesia extends only to T-11 or T-12, the table should be made level, or even placed in several degrees Trendelenburg. Testing must be continued constantly until the level of T-10 is attained, and then a slight reverse Trendelenburg resorted to again. If the level has extended to T-10 or higher upon first checking the patient, the table should be kept in reverse Trendelenburg throughout the vaginal preparation. Lidocaine is a very quick-acting spinal anesthetic agent, and the first several minutes after injection are most important in that this is the period during which the hyperbaric solution can be shifted within the subarachnoid space and in which the level of anesthesia can be adjusted.

Timing of the Spinal Block

The timing of the spinal block for a vaginal delivery is dependent upon the exigencies of the particular delivery at hand. In order to accomplish a spinal anesthesia which is satisfactory to the patient and to the obstetrician, it is necessary to be familiar with the parity of the patient, the history of the duration of labor during previous pregnancies, the speed of progress during the present labor, and the situation as it exists at the moment concerning the dilatation of the cervix and the station of the head of the fetus. It is advisable that the

anesthetist engaged to administer the anesthesia be familiar with this information prior to the actual time of the block. Only in this way can he adapt the technique to the needs of the particular case.

The simplest type of case to manage is the primigravida for whom an episiotomy and outlet forceps delivery are anticipated. Progress of this type of patient is usually slow, steady and predictable. These patients can best be blocked when there is some bulging of the perineum and there are several centimeters of the caput showing. An anesthesia to the level of the umbilicus (T-10) will stop all of the pain of uterine contractions and of the delivery of the baby through the birth canal. Contractions may continue, but we cannot be certain that these will continue with their pre-anesthetic force; this is the reason for using this technique in anticipation of a low forceps delivery.

The uncomplicated multigravida who has been progressing slowly can be blocked when the cervix is fully dilated or even when there is a partial rim of cervix palpable, when the head has reached the perineum, and before any bulging of the perineum is evident. Many of these patients will continue with contractions of the uterus adequate to accomplish a spontaneous delivery with the help of an episiotomy. The multigravida with an occipit anterior, and with a history of rapid labors or a rapid progression during the present one will best be blocked earlier than the types of cases described above; otherwise, the second stage may be completed so quickly that there will be minimal or inadequate time in which to give the spinal anesthesia. If progressing rapidly in a regular pattern of labor, these patients may be blocked when the cervix is 7-8 cm. dilated and the head 1-2 cm. off the pelvic floor. In most of these patients, the head will have progressed to the outlet by the time they have been turned over and are ready for delivery. Very, very occasionally, the force of uterine contraction will be diminished to the extent that there is some slight delay before the delivery of the baby. Even these few inci-

dents can be circumvented by using 40 mgms. of 2½ percent lidocaine (0.8 cc. of the currently marked 5 percent solution mixed with an equal amount of spinal fluid). For continued uterine contractions, an effort should always be made to keep the level of the block at T-10 or below.

Immediate Complications of Spinal Anesthesia

Several types of side-effects may be seen following a low spinal anesthesia used for obstetrical procedures. Some of these are due directly to the anesthesia, and others simply occur in association with the anesthesia. All of these must be treated by the anesthetist, since he is responsible for the overall observation and care of the patient while the obstetrician is busily engaged with the delivery of the baby.

The blood pressure should be checked frequently during the period of anesthesia, and hypotension guarded against and treated. Many obstetrical patients have a normal systolic blood pressure of only 100 to 110 mms. mercury. Thus a post-spinal pressure of 90 to 100 is not unusual and should be of concern only if the patient had an elevated pressure prior to or during labor. We should guard against the blood pressure falling below 80 mms. Hg. for other than transient intervals. Such a drop can almost always be reversed through the use of methoxamine (Vasoxyl®) 10 mgms. i.m. and 2 mgms. I.V. If there is not an adequate response within a few minutes, consideration should be given to the possibility of impaired venous return through the inferior vena cava due to compression from the weight of the uterus. This syndrome can be promptly alleviated by turning the patient to her side, or, more simply, by pressing the uterus to the side, thus relieving the pressure on the posterior abdominal structures.

Respiratory adequacy should be watched closely. If there is any question or concern, the patient should be requested to take a deep breath at frequent intervals, for a period of at least fifteen minutes. Respiratory activity is

related to the height of the spinal anesthesia, and is also impaired by the increased intra-abdominal pressure caused by the pregnant uterus. An anesthesia to the level of T-10 should influence breathing very little. A pregnant patient in the supine position with a spinal anesthesia which has extended to a level of T-4 to T-6 may well benefit by the assistance of oxygen under intermittent positive pressure synchronous with her own respiratory rhythm. If the level has extended higher than this (T-1 to T-4), it may be necessary to assist more vigorously, or to assume all control of the patient's respirations. Concomitant with this high sensory anesthesia and motor blockade, a block of the sympathetic nervous system will result, and support of the blood pressure with sympathomimetic drugs as discussed above will frequently be necessary. Hypotension and respiratory inadequacy are our most serious complications of spinal anesthesia. These occur infrequently, and when apprehended promptly, can be readily managed without any resultant residual sequelae.

Nausea and vomiting following a spinal anesthesia can be an uncomfortable and distressing experience for the mother. This very occasionally may accompany the cerebral anoxia associated with a period of hypotension. Since this is the most serious of the possible etiological factors, it should be the first to be eliminated as the cause, and treated if it is. The emetic effect of the opiates used during labor is probably the most common underlying cause. This response is usually controlled through the slow intravenous injection of perphenazine (Trilafon®), 5 mgms. The use of perphenazine in conjunction with the opiates will in most cases eliminate the occurrence of nausea and vomiting during the prepartum and intrapartum period.

Some patients find that uncontrolled shivering after the spinal block and during the delivery may be the most unpleasant aspect of the delivery room experience. The cause of this phenomenon has not been ascertained. Preliminary observations indicate that it is not due to a lowered body temperature nor due

to a lowering of body temperature. It is most frequently observed in patients who have had a very precipitous labor, and who have had a minimum of sedative drugs during labor. These patients are made considerably more comfortable if given an intravenous barbiturate or opiate as soon as the period of depressant influence on the newborn has passed.

Delayed Complications (Prevention and Management)

The complications of spinal anesthesia that have received the greatest attention in both medical and lay literature have been those that become apparent at some time subsequent to the termination of the anesthesia. Thus the layman about to receive a spinal anesthesia expresses concern about the possibility of a *spinal headache*, a *backache* or a *paralysis*.

HEADACHE. Headache of varying intensity is the most common delayed complication of spinal anesthesia. The onset is usually at about thirty-six to forty-eight hours after recovery from the anesthesia. These headaches are characteristically made worse on assuming an upright position, whereas they are mild or even absent in the supine position. They are markedly exaggerated by any abrupt movement of the head. The location may be only nuchal, or include the occipital, vertical, and frontal areas, depending upon the severity. There is ample evidence to show that post-spinal headaches are due to decreased cerebrospinal fluid pressure, probably associated with a loss of fluid through the defect in the dura caused by the spinal needle. Convincing clinical data have been amassed to show that the incidence of post-spinal headaches approaches a fraction of one percent if the following technical criteria are adhered to: 1) a single, atraumatic subarachnoid tap; 2) the use of a small bore (26-gauge) spinal needle with a non-cutting, pencil point bevel; and 3) adequate hydration of the patient (the authors invariably administer a 1000 cc. of 5 percent glucose solution in one-quarter strength normal saline to every patient receiving a spinal anesthesia).

If a headache has occurred, treatment is

aimed at restoring a physiologic pressure within the subarachnoid space. Measures used will depend largely on the severity of the complaint. If the headache is mild, hydration with intravenous saline solution, bedrest, and a tight abdominal binder (a tight-fitting corset) will usually give satisfactory symptomatic improvement. For the patient with a severe, incapacitating post-spinal headache, rapid relief will follow the introduction of normal sterile saline (30 to 40 cc.) into either the subarachnoid or the epidural space. The most lasting relief is assured by the combination of a subarachnoid and an epidural injection of saline solution. When at all convenient it is advisable to combine the subarachnoid and/or epidural instillation with parenteral hydration and bedrest.

BACKACHE. Although the complaint of backache is a common malady in the women who have carried a pregnancy to term, irrespective of the type of obstetrical anesthesia, the possibility does exist that an improperly performed lumbar tap may give rise to distressing symptoms of back pain. When spinal anesthesia is obtained only after multiple traumatic explorations with a dull, large gauge spinal needle, there is little reason to doubt that damage to one or more of the following pain sensitive structures may occur: a) the vertebral periosteum, b) the annulus fibrosis of the intervertebral disk (with or without herniation of the nucleus pulposus), c) the perivertebral plexus of veins (with formation of an epidural hematoma). The prevention of such complications is dependent upon the development of meticulous technique in performing the spinal tap, as well as the preparation and use of proper sized and honed needles.

NEUROLOGICAL SEQUELAE. Reports on the incidence of neurological sequelae following spinal anesthesia are complicated by factors unrelated to the anesthetic technique, such as the nature of the surgical procedure, the positioning of the patient, the use of restraints, the administration of intramuscular injections into the thigh and gluteal musculature, and the presence of pre-existing central nervous system

disease. Long term follow-up studies have shown that with the proper attention to details of technique, the choice of reputable pharmaceutical drugs, and the avoidance of using the technique in patients with known neurological disease, the incidence of nerve damage is not only low (0.8%) but is of minor severity and usually transient in duration.⁶ It has been our experience and that of others that such complications, when they do occur, are evident in the immediate postoperative period. The duration may be from a few days to more than a year, with early marked improvement in symptoms and objective findings. Persistent anesthesia or hypesthesia involving two to three sensory dermatomes of the lumbosacral plexus is the most common clinical picture. The extent of involvement is usually bilateral with one side affected more than the other. When involvement is strictly unilateral, some other etiological factor is probably responsible. When motor impairment is present, it may show a more rapid and satisfactory recovery than the sensory component. In our present state of knowledge, it is thought that the cause of such lesions is most likely related to the anesthetic agent or to an accompanying contaminant that bathes the nerve roots of the lumbosacral trunk. Prevention is therefore directed at the use of local anesthetic agents that affect little or no tissue reaction, and secondly, to the careful avoidance of the introduction of any irritating contaminant during the performance of the spinal tap or the instillation of the anesthetic agent. The gloves of the anesthetist should not touch the antiseptic solution and they should be wiped clean of any excess powder. As emphasized above, the spinal needles and syringes should be cleaned only with water and ether, avoiding the use of soap, detergent, alcohol or any chemical cleaning agent. Only by careful attention to such details can spinal anesthesia be a safe form of management, free from the more serious complications that have been reported in the past.

Contraindications to Spinal Anesthesia

From the standpoint of the incidence and

magnitude of ensuing complications, the outstanding contraindication to spinal anesthesia is its use by personnel who lack an understanding of the principles and techniques involved. Such a situation, of course, prevailed in the early days of the spinal block, and was responsible for an alarming incidence of mortality and morbidity. Assuming that the anesthetist is competent to perform the block, that there is proper selection and preparation of the equipment, and that adequate resuscitative measures are immediately available, many of the contraindications to spinal anesthesia are relative and not absolute. Nevertheless, the following conditions, having repeatedly appeared in the medical literature as reasons for not using spinal anesthesia, should serve to caution the anesthetist to give due consideration before administering a spinal block to an obstetrical patient:

1. A history of past or existing central nervous system disease (i.e. poliomyelitis, multiple sclerosis, combined system disease of pernicious anemia, herniated intervertebral disk with radicular symptoms, bacterial or viral infections, neoplasm, and trauma of the meninges or cord).

2. A history of neurological sequela following previous spinal anesthesia.

3. A persistent bloody spinal tap with or without paresthesias.

4. Infection in the area through which the spinal tap must be performed.

5. Uncontrolled shock.

6. A patient who unequivocally objects to spinal anesthesia.

When considering an alternate form of anesthesia, the responsible anesthetist may conclude that there is possibly more of an indication for, than a contraindication against, the use of spinal block. The administration of an inhalation anesthesia to a patient with a history of childhood poliomyelitis, but also with a history of eating just prior to the onset of labor, probably imposes greater danger to the well-being of that patient than the supposedly contraindicated spinal anesthetic. All too frequently, the reason for not utilizing

spinal anesthesia is fear of medico-legal complications, although such a line of reasoning may place the patient in a hazardous situation (albeit, the physician is on tenable legal grounds). Greater criticism should fall on the physician who decides on a technique of anesthesia which is most likely to obviate him from legal entanglement than on the one who chooses the anesthesia judged safest for the patient.

Advantages of Spinal Anesthesia

TO THE OBSTETRICIAN—From an operative standpoint, spinal anesthesia gives maximum perineal relaxation, allowing for a degree of soft tissue distensibility that facilitates both spontaneous deliveries as well as forceps rotations and extractions. By maintaining the level of anesthesia at T-10, the uterine tone and contractions are little affected; thus, during the act of delivery, the intact forces of uterine activity assist in the expulsion of the fetus, and in addition, the third stage blood loss is diminished. Subsequent to delivery, the centrally located neural block has no effect on the response of the uterine smooth muscle to circulating oxytocics. The obstetrician who has been introduced to spinal anesthesia soon becomes accustomed to the unhurried atmosphere made possible by a form of anesthesia that places neither the infant nor the mother in jeopardy by its duration or magnitude of depression.

TO THE INFANT—It is now recognized that the placenta serves a minimal role as a barrier to prevent the transfer of narcotics, sedatives and anesthetic agents from the maternal to the fetal circulation. Fortuitously, blood levels of depressant drugs that result in heavy sedation and even anesthesia to the mother, usually produce only moderate depression of the reflex threshold of the normal full-term infant.³ However, in the case of premature infants, infants traumatized by difficult deliveries, and those who have had physiologic insult from abnormal placental separation, there may be little tolerance for the further depression that results from the addition of an inhalational or

intravenous anesthesia to the narcotic-sedative regime used during labor. Provided the spinal anesthesia does not embarrass the mother's respiratory or cardiovascular status, there is no reason to believe that this form of anesthesia has any adverse effect on the fetus or newborn. Use of spinal anesthesia also permits the anesthesiologist to offer his assistance in active neonatal resuscitation, which is not possible if the mother is under a general anesthetic.

TO THE MOTHER—Surveys of maternal mortality reports from this country and from England have shown repeatedly that aspiration of vomitus, resulting in respiratory obstruction and asphyxia, is by far the most frequent cause of anesthetic deaths in obstetrical patients. All too frequently, the anesthetist administering a general anesthesia to an obstetrical patient is either unfamiliar with or ignores the fact that the emptying time of the stomach

is markedly prolonged not only during labor but well before its onset. A properly conducted spinal block, while affording the patient complete relief from pain for spontaneous and forceps delivery, to a large extent prevents the difficulties associated with aspiration of stomach contents. Following the delivery of the baby and repair of the episiotomy, the continued careful observation of the patient's airway that the use of a general anesthesia would necessitate might be extremely difficult, if not impossible, in the sporadically overactive obstetrical suite. The wakeful state customarily maintained with spinal anesthesia allows the patient to maintain her own airway. In addition, the large majority of women derive a great deal of pleasure in being conscious during the memorable event and they are awarded the satisfaction of playing an active and co-operative role in the accomplishment of their own child's birth.

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Lafayette Avenue and John Street



Neonatal Suffocation

Why bilateral atresia of the posterior nares is responsible for infant suffocation at birth

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The purpose of this paper is to call attention to a little known but important relationship between the congenital anomaly, bilateral atresia of the posterior nares in the newborn, to suffocation.

It is surprising how few physicians are familiar with this relationship. As a matter of fact, and strange as it may seem, many have never heard or known of its existence. Committees, whose sole purpose it was to investigate the causes of infant mortality and discover ways and means to reduce it, for the same reason, have never included atresia of the posterior nares in their investigation. Likewise, many pathologists and medical examiners do not examine the posterior nares, because the nose is never thought of or considered as a vital structure, responsible enough for the death of a newborn. All of this apparent lack of information is truly an unbelievable and unfortunate situation, because the lives of many infants could otherwise have been saved, with a corresponding reduction in the infant mortality. This is still an amazingly, fertile field to be seriously considered. One may be pleasantly surprised, after being alerted to the presence of this condition, to find a number of such cases which were heretofore overlooked, with the cause of death previously stated as "unknown" or merely asphyxia.

The question is frequently asked, "How often does it occur?" We do not know. There are no available statistics anywhere showing the incidence of suffocation in the newborn due to bilateral atresia. These cases are usually listed under the all inclusive group of "atelectasis and suffocation, code No. 762," by our health department agencies. This absence of information is due to the fact that a diagnosis of atresia is seldom ever made as the contributing cause of death or ever reported as such, for the record. It also resolves itself in the fact, that at post mortem examination, atresia is not looked for and therefore not found. Statistics are only made by reporting the condition found and diagnosed. Hereafter, if atresia of the posterior nares is found and reported as "Atresia of the posterior nares" and not as asphyxia or just atelectasis, we will begin to have statistics and create a record of its incidence, to be tabulated under the International List code No. 759, congenital malformations of the respiratory system, where it belongs. You can be certain that it is present more frequently than is generally suspected. Atelectasis may be the only finding at autopsy because with a bilateral atresia, the infant never did breathe to expand the lungs. Atelectasis is not congenital.

When the pathologists only finds ate-

lectasis, the posterior nares on each side of the nose should be checked for atresia. This should also be done in all cases of asphyxia at birth, especially when at autopsy, no other cause of death can be found, an atresia may be present.

Atresia of the posterior nares is nothing new. It appears briefly in all text books on pediatrics and ear, nose and throat and yet the profession does not know that such an entity exists. Its importance was first brought to light in 1829 by Otto.¹ He found atresia of the posterior nares at autopsy in a number of infants who died of suffocation. Since then, a number of papers have been published confirming this relationship. For some unknown reason, this information has not become sufficiently widespread to give it the proper consideration it merits. It was recognized in 1829 and certainly exists today. That is not a fanciful situation. It is real. As we become more aware of the possibility of its presence in the newborn, a diagnosis of bilateral atresia of the posterior nares will be made more frequently as one of the causes of asphyxia.

Everyone knows that it is necessary to have a clear airway to prevent asphyxia and make every effort to obtain it, but occasionally fail. If a bilateral atresia is present, the airway will be completely obstructed, it must be recognized immediately and promptly treated to prevent suffocation.

Anatomy

Atresia of the posterior nares is a congenital anomaly situated in the nose, at the junction of the hard and soft palate completely closing the nasal airway posteriorly. Embryologically, it is due to a failure of the bucco-pharyngeal membrane to open. The mesodermic layer between the membranes when present, forms a bony wall. The atresia may be completely bony, incompletely bony or membranous but usually completely bony. The nasal mucous membrane covers it anteriorly and the pharyngeal mucous membrane posteriorly. It can occur on one or both sides. The nasal chamber may be irregular, narrowed or stenotic.²

Symptoms

The usual signs of an impending asphyxia are naturally present. Another question also frequently asked, "doesn't the infant open its mouth to breathe, if it cannot breathe through its nose?" The answer is definitely, *No*. Reason: the normal reflex is to breathe only through the nose, whether it be the infant or adult. There is no reflex in the infant to open its mouth to breathe if the nose is completely obstructed. Opening the mouth is purely a voluntary action, which newborns do not have. It is axiomatic to state, if an infant cannot breathe through its nose, due to a complete bilateral obstruction, it will not open its mouth to breathe. As a matter of fact, it will close its mouth tighter in an effort at forced nasal breathing. This phenomenon is not commonly known but can very easily be demonstrated clinically, by gently pinching the nostrils together of a newborn while it is resting quietly, and watch the reaction. If the infant does not cry, it will tightly close its mouth, become red in the face, toss its head from side to side and manifest signs of an impending asphyxia until the fingers are released. You can also observe that all the infants in the nursery sleep with the mouth closed. There are some infants however, who are mouth breathers at birth, and will not suffocate; although a bilateral atresia may be present, these cases are the exception.

Diagnosis

A catheter is usually passed into the nose to aspirate mucous in order to obtain a clear airway. This is not nearly sufficient. A clear airway can only be determined when the catheter can be passed into the pharynx. Any interference to the passage of the catheter into the pharynx should immediately arouse a suspicion that an obstruction due to an atresia may be present. The failure of milk, saline or mild dye to pass into the pharynx when dropped into the nose should make one suspicious of a diagnosis of atresia. Passing a metal probe into the nose will aid in making a diagnosis. It is impossible to know by probing alone

whether the obstruction felt with the tip of the probe is the atresia or the posterior pharyngeal wall. Measuring the distance in each case is the only way to distinguish between the two. Pass a metal probe into the nose until it meets resistance, then hold the probe with the fingers at the rim of the nostril, now withdraw it from the nose and measure the distance from the finger to the tip of the probe. If this distance measures about $1\frac{1}{4}$ inches, an atresia is present. If the measurement is $1\frac{3}{4}$ inches (this is the distance to the posterior pharyngeal wall), the nares is clear. Confirmation of the diagnosis is made by x-ray with Lipiodol® dropped into each nostril.

Treatment

Resuscitators are absolutely of no value, if

a bilateral atresia is present. The infant must get sufficient air as quickly as possible after a diagnosis of atresia is made, to save it from suffocation. This is accomplished by immediately opening the mouth and keeping it open with an anesthetist's infant-sized airway placed in it, taping it to the face to keep it into position. This of course is temporary but a very important emergency lifesaving procedure, until a permanent nasal airway can be surgically established within the first twenty-four hours after birth.³ Only a sufficient amount of air is obtained through the airway to barely maintain life, much more and adequate amount of air is received only through a clear nasal passage.

The life of a newborn is thereby saved from suffocation.

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MEDICAL TEASERS



A challenging crossword
puzzle for the physician.

SEE PAGE 47a

Clinical Pathological Conference

HIGHLAND-ALAMEDA COUNTY HOSPITAL

E.H. MEXICAN MALE, AGE 17.
ADM. 3-4-58. DIED 3-12-58.

This 17-year-old Mexican schoolboy had been "perfectly well" until November of 1957 when he had a 3-day episode of headache and malaise which was thought to be the "flu." He returned to school, but came home early on a few occasions complaining of easy fatigability. In December he was taken to a local physician who treated him for complaints of "flu" and in January he had several episodes of vomiting yellow material.

Late in January he complained of headache and retrobulbar pain followed by transient periods of numbness, and crampings in his arms and legs. Approximately 6 days prior to his present admission, malaise increased and was accompanied by episodes of vomiting and numbness of his extremities. On day of admission he was noted to be confused and disoriented. He had a generalized convulsion at home. Several days prior to entry his doctor had found Hgb. 40%; RBC 2.1 million; NPN 45 mgm%; 3+ ceph. flocc., 2+ albumin in the urine. An eye consultant observed a retinal hemorrhage in the right fundus. The patient had received several shots of penicillin in December for the "flu" episodes mentioned above.

History

Past History. Seasonal occurrence of "hives," otherwise the past history was completely negative.

Family History. One of the patient's sisters had an "allergic" condition which was not otherwise delineated. There was no history of kidney disease, anemia, bleeding, easy bruising, or any other serious illness.

Physical Examination. On admission examination revealed a thin, young male who moaned and picked at his bed clothes, talked incoherently and only responded slightly when his name was called. Rectal temp. 101 F. Pulse 108. Resp. 24, BP 138/78. The skin showed no petechiae; there was no adenopathy or upper respiratory inflammation. Examination of fundi at that time was unsatisfactory. The neck was not stiff. A Grade I low pitched systolic murmur was heard, best at the apex, and the lungs were clear. Liver, spleen, and kidneys were not palpable. The deep tendon reflexes were hyperactive bilaterally, and a sustained ankle clonus was present bilaterally.

Five hours later the patient was deeply comatose, responding only to deep pain. His head and eyes were deviated to the right with an associated left hemiplegia, a left central facial paralysis, and an intermittent coarse tremor of the right arm and leg.

Laboratory studies in the emergency room revealed a WBC of 20,400 with 90% polys, 8% lymphs, and 2% monos. There was mild anisocytosis. A urinalysis showed a specific gravity of 1.013 with no sugar, 4+ albumin and a few RBC's. There were no casts. The spinal fluid was clear with 12 RBC's/cu.mm. and no xanthochromia. Chest and skull x-rays

were unremarkable. Patient at this point was admitted to the medical ward with a diagnosis of possible brain abscess.

Hospital Course. The patient was given 1 unit of whole blood the first night because of his marked anemia and in preparation for possible surgery. Examination on the following morning revealed additional physical findings which included 2 discrete retinal hemorrhages and several small petechiae on trunks and legs. It was felt that the disease was a generalized process involving the kidney, brain, and possibly other organs. The thought of surgery was dismissed at this time.

Multiple blood cultures were drawn which later proved to be negative and the patient was placed on 15 million units of penicillin daily.

Second Day

Laboratory results on the second day of admission were as follows: WBC 15,500; Diff. 80% polys, 18% lymphs, 2% monos; Hgb. 6.2 gm; RBC 1.57 million; PCV 17%; Wintrobe Indices were MCV 86, MCH 31.5, MCHC 37%; Icteric Index 18; Retic. count 19% bleeding time 9 minutes; clotting time 6 minutes; BUN 55; Platelet count, 45,000/cu. mm. Urine 150-250 RBC/hpf. Bone marrow aspiration revealed erythroid hyperplasia and megakaryocytosis. Platelet production did not seem to be diminished.

On the second day the patient had an episode of hematemesis of coffee ground material. Scleral icterus was noted along with ecchymoses and bleeding from the gums. The patient remained comatose. Rectal temperature ranged from 101° to 102°F.

On the third hospital day, the direct Coomb's test and L.E. prep. were negative. ACTH, cortisone, hydrocortisone, and chloramphenicol were added to the therapeutic regimen.

Despite 8 blood transfusions during hospitalization, there was no significant change in the hemoglobin or platelet count. However, he gradually regained consciousness during the next 3 days. His febrile course persisted with rectal temps. of 100°-103°F and his hemi-

plegia gradually improved. Bleeding time on cortisone returned to normal and no new bleeding was noticed. Despite the normal bleeding time, examination of peripheral blood revealed almost no platelets.

On the 5th day of admission, skin, muscle, and bone marrow biopsies were done. These failed to reveal any new information. Six days after admission the patient became confused, lapsed into semicoma with Cheyne-Stokes respirations. He expired 8 days after admission.

DR. HENRY LEBOST, *Assistant Resident, Radiology; Highland-Alameda County Hospital.* The heart size is at the upper limits of normal. The vascular markings, lung fields and bony thorax are not remarkable. Films of the skull demonstrate a normal appearance of the calvarium, vascular markings and sella turcica. A calcification noted on the lateral and Towne views, is assumed to be pineal, and is in normal position. There also appears to be some calcification in the left choroid plexus in normal position. The right plexus is not visualized. There are no localized erosions, or areas of hyperostosis in the skull to suggest a chronic subdural hematoma, although an acute lesion could be present without having produced these changes. In K.U.B. films the kidney shadows are outlined in anatomical size, shape and position with the upper pole in this examination slightly above the 12th rib posteriorly and extending with the lower pole at the transverse processes or slightly beyond the third lumbar vertebra. Urinary calculus is not apparent. The bony structures appear normal.

DR. ELI MOVITT, *Chief Medical Service Veterans Administration Hospital, Oakland, Associate Staff, Highland-Alameda County Hospital.* The case is that of a 17-year-old boy whose illness ran a very stormy course during the period of hospitalization and swiftly terminated in death a week after admission. This illness, however, seems to have begun at least four months before entry with symptoms which were originally interpreted as those of a "flu" or "flu-like" state characterized by headache and malaise.

Beginning

Although the patient seemingly recovered from this within three days and even went back to school, quite apparently it was only a beginning of what proved to be a serious and fatal illness. Thus the boy, following the three-day period of "flu-like" symptoms, developed easy fatigability, perhaps over and beyond just merely a post-influenzal asthenia, had several spells of vomiting, bringing up some yellow material; and in addition, and in rather rapid succession, became subject to still more headaches, retrobulbar pain and transient episodes of numbness and cramping in all four extremities.

Later there were added other developments such as mental confusion, disorientation and finally a generalized convulsion which brought him into the hospital.

Nervous System

Thus, the salient features have become neurological ones, making one think of some kind of central nervous system involvement, for example a brain tumor; or, still better, a brain abscess because of the associated fever and leukocytosis.

In fact, the patient was being prepared for an operation soon after entry and one would be inclined to believe that the surgical procedure then contemplated was with this thought in mind.

But no sooner do we start entertaining this possibility of a brain tumor or a brain abscess than we come across certain data that make this diagnosis less likely.

Generalized

We are told that the patient's private physician found marked anemia, elevated blood urea nitrogen of 45 mgm%, proteinuria and a positive cephalin flocculation test. We would not ordinarily expect to see all this in association with the two conditions I just mentioned.

Perhaps a slight degree of azotemia could be explained by protracted vomiting causing a so-called pre-renal azotemia.

Possibly, also, proteinuria could be ascribed

to the same cause; but marked anemia and a positive cephalin flocculation test would remain unexplained.

Because of the severe anemia and a positive cephalin flocculation test, we might start thinking of nervous system involvement as representing some generalized disease process and true enough, we find support for this thought in what follows in the protocol.

Neurological

It is interesting to note that the neurological findings are multiple, diffuse, rather bizarre and some of them transient—consisting of hyperreflexia, bilateral ankle clonus, deviation of the head and eyes to the right, left facial weakness and left hemiplegia, intermittent coarse tremors of the right arm and leg and variable state of consciousness, with the patient lapsing into coma and then regaining consciousness at least temporarily, with hemiplegia improving at one time.

In addition to these neurological manifestations there were the following pertinent physical findings: fever, Grade I low pitched systolic murmur, heard best at the apex, retinal hemorrhages and petechiae over the trunk and legs.

Bacterial?

Here we have all we need for the diagnosis of subacute bacterial endocarditis. Anemia and leukocytosis will go well with this diagnosis, and to these we may add the neurologic manifestation and the renal involvement manifested by proteinuria, hematuria, and mounting azotemia, the blood urea nitrogen reaching at one time the level of 55 mgm.%.

Glomerulonephritis is one type of renal involvement in this disease, though it is a rarer type of involvement. Sometimes it even becomes a most prominent feature of subacute bacterial endocarditis and may then be mistaken for the primary disease. Neurological symptoms and signs would be of course of embolic origin.

True enough, a definite diagnosis of an organic valvular defect on the basis of only Grade I apical systolic murmur cannot be made, but there are cases of subacute bacterial endocar-

ditis without any murmurs at all. One knows of at least three reasons for this occurrence: the murmur should have been heard but was not; the valvular defect is at least part of the time acoustically silent; or the lesion is extracardiac.

It is probably with this thought in mind about possible subacute bacterial endocarditis that multiple blood cultures were drawn and penicillin therapy instituted, in spite of the negative results of these cultures.

Hemorrhagic

But at the same time, there is too much in the protocol against the diagnosis of subacute bacterial endocarditis in addition to the problem posed by negative blood cultures which otherwise might be thought to represent the non-bacterial stage of the disease. In the first place, the neurologic side of the picture is somewhat too bizarre to be interpreted as being due to an embolic phenomenon. Nor do the petechiae seem to be of that origin.

We see that the patient had thrombocytopenia, and this would well explain the petechiae as well as prolonged bleeding time of 9 minutes. This finding of thrombocytopenia in the blood is correlated with megakaryocytosis in the bone marrow so we know that there is adequate platelet production. Thrombocytopenia is also probably responsible, at least in part, for an episode of hematemesis, ecchymoses and bleeding gums.

All these hemorrhagic tendencies are not usually a part of subacute bacterial endocarditis; neither is the icterus the patient developed while in the hospital. It looks like we better abandon this diagnosis altogether.

Collagen

But we are still left with the evidence of multiple system involvement, and inasmuch as it does not fit into the frame of subacute bacterial endocarditis, we can turn next to the group of conditions where multiple system involvement is so characteristic, namely, the so-called "collagen diseases," disseminated lupus erythematosus, for example. There is probably nothing

in the protocol that is inconsistent with this disease. We all know that skin and muscle biopsies may be unrewarding in this condition, as they were in the case under discussion; neither do the negative lupus erythematosus cell preparations reported in the protocol rule it out necessarily any more than the positive result on this test would absolutely rule it in.

The murmur, unless it stood for nothing at all, could possibly represent the verrucous endocarditis of disseminated lupus, the "Libman-Sacks" syndrome, only comparatively rarely found in our day and age, in contrast to having been a common finding some thirty years ago. This is probably for the reason that the old series of lupus erythematosus were weighted by the endocardial lesion which was then one of very few sure ways of arriving at the diagnosis.

Hemolytic

Anemia is common in lupus erythematosus. Sometimes it is very severe. I saw one patient with only 3 gm.% of hemoglobin so I am not all surprised that your patient had 6 gm.%. In some patients it is a hemolytic type of anemia, as it undoubtedly was in our patient today.

In contrast to congenital hemolytic disorders where the anemia may be microcytic and hypochromic, in acquired hemolytic disorders it is usually microcytic or normocytic and normochromic.

The Wintrobe indices in this case were those of a normocytic, normochromic anemia. The slight icterus, the high reticulocyte count of 19% and particularly the inability to raise the hemoglobin's level by eight blood transfusions crowded into the period of only several days—unless there was more bleeding than the protocol makes apparent—all point most strongly to the presence of a hemolytic process.

Our patient also had marked thrombocytopenia on several counts. Well, some patients with lupus have this, also. In fact Dr. Dameshek lately has been preaching the gospel that some patients with lupus may have thrombo-

cytopenic purpura as the initial manifestation of the disease and then be mistaken for the idiopathic variety. As far back as about a decade ago Dr. Rich at Johns Hopkins Hospital, reviewing cases with the initial clinical diagnosis of idiopathic thrombocytopenic purpura, uncovered a few instances of disseminated lupus.

Lupus Cell

Then all in all, why should we not accept the diagnosis of this condition in our case? As I said before, there is absolutely nothing in the protocol that is in any way inconsistent with it, but on the other hand, one feels just a bit uncomfortable in stopping right here for a number of reasons.

With all that was said about the lupus erythematosus following such a fulminant course, one would like to see at least an occasional lupus erythematosus cell, and if not a typical lupus erythematosus cell, at least a tart cell. Nothing of the sort had been found. Also, although in an angiitic process involving vessels of the brain all sorts of neurologic manifestations can be expected, here we have so many different ones in one and the same patient. Although very marked anemia, a severe hemolytic process and profound thrombocytopenia occur in lupus erythematosus, here again they are all manifested in one and the same patient, as if it were a little too much for just one case.

On the other hand, we know of a disease process where positive lupus erythematosus cell test is not needed for confirmation, where the skin and muscle biopsies, with only a few exceptions, had been unrevealing as they were in your patient; where marked hemolytic anemia and thrombocytopenic purpura almost always go together; where, in fact, a hemolytic process and thrombocytopenia are the *sine qua non* of the disease; and where everything else our patient had fits so well.

The only reason I would hesitate in making this diagnosis is that it is a comparatively new and still rare affliction, with only, I would venture to say, several dozen cases reported to this date. I have never seen a case although

I am well acquainted with this condition through the literature.

I have in mind "thrombotic thrombocytopenic purpura," a condition which on the clinical side is characterized by a triad of thrombocytopenic purpura, hemolytic anemia and neurological signs known to be as bizarre, diffuse and sometimes transient as they had been in this boy.

On the pathologic side the disease is characterized by formation of multiple thrombi in small blood vessels throughout the body. These thrombi explain the clinical manifestations of the diseases and are believed by some to be responsible for thrombocytopenia as if the platelets were consumed or caught in the process of thrombus formation; although, I understand, the pathologist has great difficulty in identifying the presence of platelets in the thrombus.

If I am allowed to make two diagnoses, I will say disseminated lupus erythematosus or thrombotic thrombocytopenic purpura. If I must make only one diagnosis, I will have to choose thrombotic thrombocytopenic purpura.

Rickettsial?

DR. EDWARD SHERRER, *Intern*. At any time was the spleen felt to be enlarged?

DR. ARTHUR SAMS, *Resident, Medicine*. No, the spleen was not palpable.

DR. MOVITT: It would not be particularly helpful as splenomegaly would still be consistent with either diagnosis.

DR. CONSTANTINE GLAFKIDES, *Assistant Resident, Medicine*. Does the 20,000 WBC sway you one way or another?

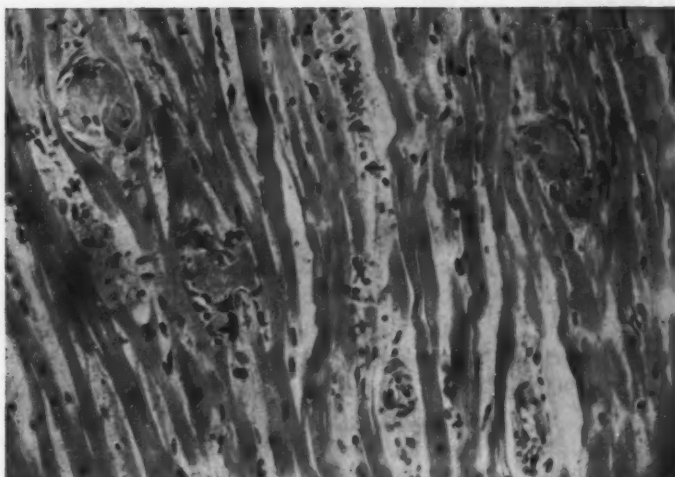
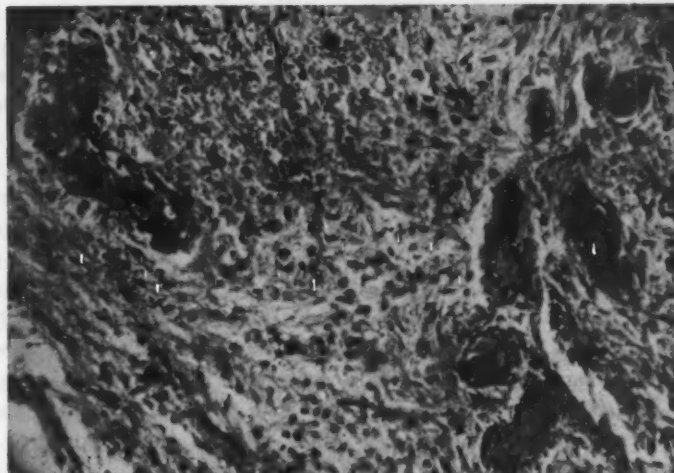
DR. MOVITT: Leukopenia and leukocytosis both occur in disseminated lupus.

DR. JOHN ALLINGTON, *Intern*. Could this be considered a rickettsial disease or infectious mononucleosis?

DR. MOVITT: The illness began several months before entry. This patient had been on broad spectrum antibiotics which should have influenced his course if he had had a rickettsial disease.

DR. MOHAMAD RAZAVI, *Assistant Resident*,

Pituitary, Pars Posterior:
Endothelial proliferation
and hyaline occlusive
thrombi (X 185).



Myocardium: Prolifera-
tion of endothelium
and occlusion of ar-
terioles and capillaries
(X 185).

Medicine. Did the patient have a high fever?

DR. MOVITT: Yes, up to 103°. Fungus infection, I believe, would explain the neurologic picture better than a rickettsial disease. I do not think that the hematologic findings, however, would go well with it.

DR. PRESTON JAMES, *Intern.* Could the etiology of the two diagnoses that Dr. Movitt made be blamed on the fact that the patient received massive doses of penicillin?

DR. MOVITT: He received penicillin therapy in December for a "flu-like syndrome"—this may not have had anything to do with what followed. However, frequently there is a history of hives or allergic manifestation in people who later come down with thrombotic thrombocytopenic purpura and penicillin may possibly set it off also.

DR. ROBERT J. PARSONS, *Director of Pathology and Laboratory Service.* How valid is

the history of hives? Most of us have had hives at one time or another. How many in the audience have had hives? I see more than 50% have such a history.

Dr. Movitt's Diagnosis: Thrombotic thrombocytopenic purpura and lupus erythematosus, or Thrombotic thrombocytopenic purpura alone.

Pathological Findings

DR. PARSONS: The autopsy revealed petechiae in the skin. On opening the body, 25 cc of blood-tinged fluid was found in each pleural cavity. 155 cc blood-tinged fluid was found in the pericardial sac. The serosa of the heart was peppered with petechial hemorrhages. The serosal surface of the lungs showed no petechiae, while the serosal surface of the stomach and liver showed petechiae.

Further examination of the body showed petechiae in the heart muscle, mucosa of the stomach and small intestine, in the parenchyma of the liver, on the surface of the kidney and in the parenchyma of the kidney. They were also found at many sites of the brain.

The heart weighed 390 grams — a little large. The spleen weighed 390 grams. The spleen was big enough, under ideal circumstances to feel it; however, the abdomen of this 17-year-old patient had good musculature and it was probably not possible to get in well enough to feel it. The liver weighed 1900 grams and was considered large.

There were longitudinal ulcerations at the lower end of the esophagus. When nasogastric tubes have been passed it is not unusual to find such ulceration.

The pathological findings are best seen microscopically. The first section shows the pituitary gland. In the posterior lobe we see many small blood vessels and capillaries that appear larger and more prominent than usual. Higher power shows that they are dilated and many of them are occluded by a hyaline appearing acidophilic mass. In many there is no perceptible reaction in the wall of the vessel. These are thought to be the earliest lesions.

Other capillaries are similarly occluded, but

we see clear evidence of endothelial hyperplasia about the acidophilic mass. Still other capillaries show very extensive endothelial hyperplasia with infiltration of the acidophilic mass. In a few capillaries there has been disappearance of the acidophilic mass, striking endothelial hyperplasia and apparent recanalization of the vessel. We believe that the lesions described pass from early or very recent lesions to late or almost healed lesions. It is estimated that the late lesions have been present for several weeks—this accounting for the duration of symptoms in the patient.

It should be noted that little or no evidence of an exudative or cellular inflammatory process is seen in or around the walls of affected blood vessels—a finding very different from that seen when septic emboli occlude vessels.

Lesions of the type described are seen in the anterior lobe of the pituitary, the heart, spleen, liver, pancreas, kidneys, adrenals and brain. In several organs, including the heart and brain, petechial hemorrhages are seen.

Lesions

Quantitatively, the myocardium is the most severely involved. You can see that every high-power field contains more than one lesion. In the myocardium one sees the full range of lesions that I described earlier and in addition more completely healed lesions are visible. Occasional granular, acidophilic myocardial fibers are visible in the vicinity of the lesions. These fibers show necrobiotic changes. A few lymphocytes and plasma cells are scattered between the myocardial fibers.

Very few lesions are found in the liver. These are in the portal spaces. We find no histological evidence of parenchymal changes or evidence of biliary obstruction that would account for the icterus or the alterations in the liver function tests.

None of the characteristic lesions is found in the lungs. The pulmonary capillaries contain vast numbers of megakaryocytes. We are not aware of the significance of this finding. A few megakaryocytes are found trapped in

pulmonary capillaries in many types of cases.

The pathogenesis of this disease—thrombotic thrombocytopenic purpura is not understood. The thrombi appear to be quite structureless. Some have described them as conglutination thrombi — thrombi containing all elements of the blood. Some believe they have identified red cells in the thrombi.

Recent work with fluorescent anti platelet antibodies has given no evidence that there are platelets in the thrombi. On the other hand, the use of fluorescent antifibrin antibodies has given strong support to the thesis that the thrombi do contain fibrin. Whether or not some ill-defined hypersensitivity phenomenon is present as a causative factor, cannot be determined at this time.

Pathological

Pathological Diagnosis: Thrombotic thrombocytopenic purpura with generalized systemic involvement.

Are there any questions?

DR. WARREN SEIBERT, *Assistant Resident, Medicine*. Were lesions found in the skin at autopsy?

DR. PARSON: We did not section the skin at time of autopsy. We had previously seen biopsies of skeletal muscle, skin and bone marrow as well as marrow smears. No lesions were found. The biopsies were made in an attempt to find histological proof for the diagnosis which was originally made by one of the interns.

Biopsies

DR. JOSEPH PICCHI, *Clinical Coordinator and Instructor, Medical Service*. Dr. Martin McHenry, one of our former interns, suggested the diagnosis of thrombotic thrombo-

cytopenic purpura and it later became clear that this was what the patient had. On the 6th day after admission the muscle, skin and bone marrow were biopsied with the Nordin-Sacker trephine. They did not show the typical picture. The patient was presented at Medical Grand Rounds before the autopsy findings because the case seemed to be so classical of thrombotic thrombocytopenic purpura.

DR. SAMS: The liver and kidney biopsies were not done because of prolonged bleeding.

DR. SEIBERT: Were the adrenals enlarged?

DR. PARSONS: No, they were not. They were normal in size and showed loss of lipid. The pancreas was also normal in size and showed a few occluded vessels. We found no significant pancreatitis to explain somewhat elevated serum amylase.

DR. MOVITT: Was there ulceration of the large bowel?

DR. PARSONS: There was no ulceration.

DR. PICCHI: To the time of our review of thrombotic thrombocytopenic purpura in April 1958, there were 131 cases reported in the world literature. Since then we have seen sporadic case reports and reviews in all of the major medical journals.

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This paper summarizes the results of a clinical evaluation of a new agent in twenty-two patients suffering from symptoms of acute gastroenteritis of multiple etiologies.

Acute Gastroenteritis

ANTHONY D. DALE, M.D.
Philadelphia, Pennsylvania

Despite striking improvements in the management and suppression of major causes of gastroenteritis, diarrhea of a wide variety of etiologies is still seen by the practitioner with sufficient frequency to justify his continuing concern. Since most patients are seen in the acute phase of the illness, the pressure of time and the necessity for providing prompt control frequently make it impractical or impossible to undertake bacteriologic determination of the offending organism. Thus, I subjected a new agent, Paremycin,* to a clinical trial, because it reportedly affords rapid control of hyperperistalsis and other symptoms of intestinal discomfort and is effective in destroying a wide range of bacterial and amoebic pathogens.¹

Paremycin is an oral antidiarrheal, each tablespoonful (15ml.) consisting of 0.1 ml. of tincture of opium (equivalent to 2.5 ml. of paregoric) and 150 mgms. of neomycin sulfate.

Method

In this study were twenty-two patients, ranging in age from seven to sixty-eight years, all of whom suffered from diarrhea resulting from

acute gastroenteritis. Diarrhea was attributable to food poisoning (seven patients), upper respiratory infections (four patients), acute diverticulitis (one patient), and psychogenic causes (twelve patients). Eight patients suffered from acute idiopathic diarrhea. The average duration of signs and symptoms ranged from two hours to two days.

The combination of neomycin sulfate and tincture of opium was usually administered in doses of one to two tablespoonfuls three or five times daily to adults and one to two teaspoonfuls three times daily to children. Therapy with the preparation was continued over periods up to eighteen hours; the average duration of therapy was six hours. No concomitant therapy was utilized during the study, and the agent was discontinued as soon as symptoms remitted.

Results

Results were classified against the following rigid criteria: *Excellent*—complete symptomatic relief within six hours; *Good*—complete symptomatic relief between six and twelve hours, *Fair*—complete or partial symptomatic improvement after twelve hours to eighteen hours.

According to these criteria, the formulation produced excellent results in fifteen patients (sixty-eight percent), good results in six pa-

From the Presbyterian Hospital, Philadelphia, Pennsylvania.

* Available as Paremycin Elixir® from the G. F. Harvey Company, Inc., New York 10, New York.

tients (twenty-seven percent), and fair results in one patient. No patient failed to benefit from therapy with this agent. Thus, excellent or good results, i. e., complete symptomatic relief within twelve hours, were seen in twenty-one patients (ninety-five percent) in this study group. Complete relief of symptoms occurred within three hours in six patients (twenty-seven percent), one of whom experienced complete relief within thirty minutes after the first dose. Nine other patients (forty-one percent) experienced complete relief within four to six hours and six patients (twenty-seven percent), within twelve hours.

No topical, systemic, or allergic side effects were observed in any of the patients and there was no instance of secondary bacterial infection.

Case Histories

The following case histories reflect the variety of causes of diarrhea in which this agent was effective:

- One 14-year-old girl, who suffered food poisoning after ingesting fish contaminated with sodium nitrite, rapidly developed severe abdominal cramps, moderate nausea, and vomiting with frequent, loose stools. Symptoms remitted, however, within three hours after a single dose of one tablespoon. The girl's father suffered prostration with similar but more severe symptoms. The administration of two tablespoonfuls of the preparation followed by one tablespoonful every three hours caused his symptoms to remit within twelve hours. No adverse side effects or recurrences were observed in either patient.

- A 52-year-old woman, suffering from acute diverticulitis, manifested severe, intermittent lower left quadrant pain, nausea, and frequent loose stools. After an initial dose of two tablespoonfuls followed by eight doses of one tablespoonful every three hours, the symptoms remitted within twelve hours. The combination of neomycin sulfate and tincture of opium not only relieved the severe pain by decreasing hyperperistalsis and placing the bowel at rest but afforded local prophylactic antibac-

terial action in the walls of the diverticulum.

- A 28-year-old girl, who suffered severe nausea, vomiting, abdominal cramps, and diarrhea after eating chicken salad contaminated with staphylococcus enterotoxin, obtained complete relief within twelve hours after the administration of an initial dose of two tablespoonfuls followed by three doses of one tablespoonful every three hours. There were no side effects or recurrence of symptoms.

- Symptoms of low grade fever, upper respiratory infection, diarrhea, and abdominal cramps of five hour's duration were noted in a 68-year-old male. After an initial administration of two tablespoonfuls of this formulation followed by three doses of one tablespoonful every three hours, the gastrointestinal symptoms remitted within eight hours. The patient experienced no untoward side effects or recurrence of the diarrhea. The fever and upper respiratory infection responded to treatment with aspirin.

Discussion

Traditionally, paregoric has been a highly useful drug for control of hyperperistalsis and diarrhea in children and adults. The inclusion of tincture of opium in this agent insures control of hyperperistalsis and relief of intestinal discomfort and also enhances the action of neomycin in eradicating the offending organisms. For as intestinal hypermotility decreases, neomycin is permitted to remain in the bowel longer to bring about intestinal antiseptis.

Neomycin's efficacy has been well documented in the literature. In one study, Dearing and Needham administered varying doses of neomycin to patients with intestinal lesions requiring surgery. They found that neomycin was effective in destroying *E. coli*, streptococcus fecalis, proteus, and pseudomonas.² Other studies have confirmed the value of neomycin in quickly sterilizing the gastrointestinal tract of *E. coli* as well as a variety of gram-positive and gram-negative bacteria. Moreover, neomycin has a wider antibacterial spectrum than such other agents as bacitracin, penicillin, or streptomycin³ and is effective against strepto-

mycin and chloramphenicol-resistant organisms.⁴ Because it is poorly absorbed from the gastrointestinal tract after oral administration, neomycin rarely produces systemic reactions or toxic effects.⁵

While neomycin has many features to commend it as an ideal antibiotic for use in acute gastroenteritis, its beneficial activity is further augmented by combination with tincture of opium; the complementary actions of these two agents, as demonstrated in this clinical evalua-

tion, insure safe, rapid, and effective relief of diarrhea and associated intestinal discomfort with suppression of the disease.

Another advantage in the use of this agent, particularly in pediatric patients, is its ease of administration and palatability. In this study, patients readily accepted the preparation and several commented favorably about its flavor. On the basis of this clinical trial, the preparation established itself as a most efficacious anti-diarrheal agent.

Summary

A combination of neomycin sulfate and tincture of opium was used to treat twenty-two patients suffering from diarrhea and associated intestinal discomfort attributable to acute gastroenteritis of various causes. The preparation was used three or four times daily for up to eighteen hours. Doses varied from one to two tablespoonfuls for adults to one to two teaspoonfuls for children, depending on the severity of the symptoms. Excellent or good results were seen in twenty-one patients (ninety-five per-

cent). Symptomatic and clinical improvement in most cases occurred within three hours after the first dose. There were no adverse side effects to the preparation or clinical indications of secondary bacterial infection. The formulation was well tolerated and accepted by all the patients. By affording prompt, safe, and complete symptomatic relief and definitive cure, Paremycin® proved to be highly effective in the treatment of acute diarrhea and associated gastrointestinal discomfort.

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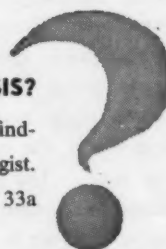
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WHAT'S YOUR DIAGNOSIS?

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SEE PAGE 33a



A Hemophiliac Patient Treated with the Artificial Kidney

This is a preliminary report of a hemophiliac patient who had renal failure and was treated with the artificial kidney. We would like to report this case-record because we believe it is the first hemophiliac on record treated with the artificial kidney.

At the end of the first dialysis, the clotting time was within normal limits, and remained so during the followup period. It is possible that we removed some type of hemolytic factor with the dialysis, but this can only be determined by further experiments.

MAURICE S. MAZEL, M.D.
GURBUZ BARLAS, M.D.
Chicago, Illinois

A thirty-three-year-old white male, who was known to be a hemophiliac since he was eight years-of-age, was admitted to another hospital in shock. After receiving first aid in the emergency room of that hospital, the following observation was made by the admitting physician: An abdominal mass was present in the right lower abdominal region, which was believed to be a retroperitoneal hematoma. After the patient was admitted to his room, he was given five pints of fresh frozen plasma and twelve pints of fresh blood, which had no effect on his clotting time. (It remained between thirty and sixty minutes during his entire stay in this first hospital.) The patient was oliguric during that time and then developed azotemia. He was later transferred to the Edgewater Hospital because of his azotemia and pulmonary edema, for dialysis with the artificial kidney.

The patient was dialyzed with the Kolff twin-coil kidney for six hours without any heparin being used. His azotemic condition improved, and with ultrafiltration, we were able to remove about ten and half pounds of extracellular fluid. This case is being reported because of the improvement of the clotting time during dialysis. The clotting time was as follows: 7:40

From the Research Department, supported by the Allen J. Stern Heart Research Foundation, Edgewater Hospital, Chicago, Illinois.

PM: 30 minutes 9:00 PM: 50 minutes; 10 PM: 15 minutes; 1:00 AM: 5 minutes. The following day, clotting time was between eight and twenty minutes. Laboratory data in this institution were confirmed by the laboratory of the referring hospital.

Because of a rapidly rising blood urea and potassium, this patient was dialyzed with the artificial kidney on two more occasions. We waited twenty-four hours between the first and second dialyses and forty-eight hours between the second and third dialyses. *Because of normal clotting time, we had to use heparin during the last two dialyses.*

Following the third dialysis the patient developed cardiac arrest while in the recovery room. After his heart was massaged, the patient lived about four hours when a second arrest occurred and he expired. We were only able to obtain a limited autopsy, which revealed an old, large retroperitoneal hematoma. This was the palpable abdominal mass noted on admittance. There was no fresh bleeding in the abdomen or in the retroperitoneal space after dialysis. We were unable to find the immediate cause of death. Although, the most likely cause was a pulmonary embolism.

Discussion

After hemodialysis with the Kolff twin-coil artificial kidney, a hemophiliac patient's clotting time became normal and remained so until he expired. We do not believe the clotting time

improved or was altered because of the two pints of fresh blood that were used to prime the machine, because the patient had had twelve pints of fresh blood previously, before being admitted to our hospital. According to the opinion of our hematologists, if the blood which was used had any effect on the clotting time, it would not have remained within normal limits for that long a period of time. It is our opinion that during dialysis, an anticoagulant factor from the patient was removed. However, it will be of great interest to learn more about this in the future when other hemophiliac patients are treated by dialysis.

During the first dialysis, heparin was not used during the entire six hours. There were no complications. In the second dialysis, we attempted to do the same, but because of the patient's short clotting time, clotting developed in the machine. We then had to re-start our dialysis and use heparin. The patient was given heparin during the third dialysis. In the last two dialyses, without resorting to protamine, the patient's clotting time became normal.

Summary

A hemophiliac patient was dialyzed by means of the Kolff twin-coil artificial kidney without any complications. His clotting time improved and remained that way until he expired.

5700 North Ashland Avenue



Some Thoughts on Tranquilizers

CARL L. KLINE, M.D.
Wausau, Wisconsin

"Restless man's mind is,
So strongly shaken
In the grip of the senses . . .
Truly I think
The wind is no wilder."

This penetrating insight into man's mind was written about 500 B. C. and is taken from the Hindu, Bhagavad-Gita.¹ This book was called by Mahatma Gandhi, "The Book par excellence for the knowledge of truth." Many of the truths recognized by the ancient sages still go unnoticed by the majority of us today.

Plutarch wrote back in about 100 A. D., "There are two sentences inscribed upon the Delphic oracle, hugely accommodated to the usages of man's life: 'Know Thyself' and 'Nothing too much' and upon these all other precepts depend." Mahatma Gandhi said, sim-

ply, "Turn the spotlight inward." One of Buddha's basic ideas was that, "The greatness of man is in proportion to his self-knowledge."² Jesus said, "Ye shall know the truth, and the truth shall make you free."

How simple the words chosen by these great men of the past, yet how profound the idea. They were all saying essentially the same thing. But their voices continue to fall upon deaf ears. For example, one can read many volumes of present day books on how to treat your own neurosis and find nothing about the very basic problem which is to "Know then thyself, presume not God to scan; the proper study of mankind is man."³ People today, as through the ages, prefer to look outside themselves for the answers which lie only within.

Man has always sought relief from tension and anxiety,—even from his own inborn, natural, inner restlessness. Most of man's efforts to alleviate anxiety have been directed outside of himself, toward other persons or things. This is often loosely referred to as "seeking an outlet for one's feelings." This tendency to attempt to rid oneself of anxiety through externalization of the anxiety is also illustrated by the common advice given to anxious people to, "Keep yourself busy," and "Don't think so much about yourself."

Future medical historians might well label the present day phase of medicine as, "The Era of Tranquilizers." Just at the moment in history of sky-rocketing emotional illness and of ever-mounting anxiety, the chemicals called tranquilizers were discovered, packaged, and marketed.

They quickly caught on in Hollywood, where a clever script writer called them, "Happiness Pills," and where the world's greatest concentration of unhappy people were quick to swallow them. More prescriptions are now written for tranquilizers than for any other medication.

Emotional unrest is at its all-time peak in the history of mankind. This is evident everywhere. Besides the great increase in incidence of specific emotional illness, we have the much greater numbers of people affected by the di-

rect manifestations of emotional unrest: Divorce, juvenile delinquency, deterioration of morals, alcoholism, drug addiction, and the crumbling of the sanctity of the home.

We have been living with war or the threat of war constantly since 1939, — twenty-one years. Other civilizations have lived with war for much longer periods of time, but not this modern kind of war. It is the long-range bombing, intercontinental missile, hydrogen bomb threat that makes modern war so emotionally disturbing. This is a great catalyzer of undesirable emotional by-products. It serves not only as a very real source of tension and anxiety, but also stands by as a ready target for our rationalizations and projections of our problems outside of ourselves. How easy to say, "Why bother to accomplish anything worthwhile; the hydrogen bomb will wipe us all out anyway. Might just as well live it up while we can."

When one takes a close look at what is happening to people today, one can more fully empathize with Schweitzer's comment, "Only at quite rare moments have I felt really glad to be alive. I could not but feel with a sympathy full of regret all of the pain that I saw around me, not only that of men, but of the whole creation."

We now have "Tranquilizers" available. Are these chemicals manufactured, packaged and sold, by prescription only, as a means of calming our tense society? Or are they intended only for the treatment of specific emotional illnesses? Can one tell what the intentions are by reading the manufacturers advertisements? Does the detail man educate us in this respect? Do the hundreds of hurried articles on the use of these drugs clarify the issue? What contribution do these drugs really make?

First, it is quite evident that we still have the same problems, tensions and emotional illnesses, quantitatively and qualitatively, that we had before the advent of tranquilizers. This has not been changed by the avalanche of these mind-plasters.

Second is the big question: Are the effects of all of these still-present emotional conditions

basically changing as a result of the tranquilizers? This does not appear to be the case.

There is no doubt that symptomatic relief from tension, anxiety, depression and other specific symptoms of emotional illness is often afforded by these new chemicals. Frequently, this alleviation of symptoms is partial, temporary or transient.

It is also true that these chemicals are capable of producing and do produce serious illness in patients. These so-called "side-effects" are not rare, nor are they negligible.

In spite of some negative factors, the value of several of these drugs in the treatment of specific mental illness has been rather well established. There are many others, however, for which the manufacturers are making strong claims, which have no established value. Many of these products, on the basis of objective evaluations, appear to have no therapeutic value.

There appears to be a distinct tendency on the part of physicians, including psychiatrists, to forget that we had several rather effective drugs for tranquilizing purposes prior to the advent of the tranquilizers. These drugs are still available and are still just as effective as they have been for their many years of use. These drugs are old friends. We know their positive attributes, their idiosyncrasies, and their evil sides. This cannot be said of many of the new chemical agents.

It is still very difficult to find a medication of any formula or name which will allay anxiety or panic as promptly, or as effectively, and as safely as sodium amytal. There is still not a drug on the market which will produce as effective and as predictable sedation as phenobarbital. Both of these drugs are certainly every bit as safe to prescribe as any of the tranquilizing drugs.

Why this stampede to the tranquilizers, almost amounting to a panic in itself? Could this be a symptom of our desperation? This is desperation, not born of needing something to do for patients with emotional illness, but arising from our wildly uncivilized civilization. It is perhaps again a seeking outside of our-

selves for the answer which can only be found within ourselves.

The almost violent insistence by some individuals that the answers to emotional illness will be found eventually in the biochemists' test tubes is of the same ilk. Even Freud held onto this biological crutch as though a little afraid to really believe what he was saying. The power of our emotions continues to frighten us to the extent that we must find ways to deny this power. We have managed to harness Niagara Falls and the atom itself, but not our own feelings.

Perhaps, somehow, we are aware of the ways in which we are driving ourselves to the brink of self-destruction. Perhaps this awareness is responsible for our somewhat desperate efforts to find some kind of survival kit. Hence, anything which shows unusual promise of rescuing us from our self-induced neurosis is seized upon. We are looking for a way to avoid facing up to the responsibility for what we are doing to ourselves.

Thoreau concluded that, "In wilderness is the preservation of the world." We do not gain preservation by tranquilizing ourselves, but through seeking the "wilderness" in ourselves and expressing it in a wholesome way. We might do well to stop and listen to men like Thoreau who have thought deeply and thoroughly and who express ideas only on the basis of years of thought and of experience and of self-searching. We, perhaps, tend to be too impulsive in our thinking and in our acting.

As we use the tranquilizing chemicals cautiously and with objectivity, let us not look for miracles. Let us not forget that there are other medications, proven by years of faithful service. Most important of all, let us continue to seek the true and basic answers to our problems of living. Let us stop expecting to find the answer under the microscope or in a test tube and look at ourselves.

In the words of Tennyson:⁴

*"Self-reverence, self-knowledge, self-control,
These three alone lead life to sovereign power."*

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2. The Religions of Man, Huston, Smith, Harper & Brothers, New York, 1958.

3. Pope, Alexander, Essay on Man.
4. Alfred Lord Tennyson—Oenone (1833).

502 Third Street



WHAT'S THE DOCTOR'S NAME

Identify this famous physician from clues in the brief biography.

PAGE 77a

Dogbites of the Face

Dogbites of the face call for immediate skilled treatment. The danger of infection developing in dogbites of the face is not as important as it was originally believed to be, but the likelihood of a severe facial deformity resulting is great unless proper care is rendered promptly.

Unprovoked attacks on people by non-rabid dogs are rare. In most instances, the animal has been teased by either a child or a foolish adult, or has been accidentally stepped on or touched unexpectedly or roughly. The danger of approaching a strange dog "face-first" cannot be overemphasized. And indeed the act of "kissing" even a dog who is the individual's pet not infrequently results in a typical type of injury which will be discussed below.

In studies of large numbers of dogbites, no consistent correlation has been found between the size of the dog and the extent of the damage, small dogs often inflicting large wounds with considerable loss of tissue. Usually, dogbites result in puncture wounds or badly lacerated ("torn") wounds. There is considerable contusion of the local tissues.

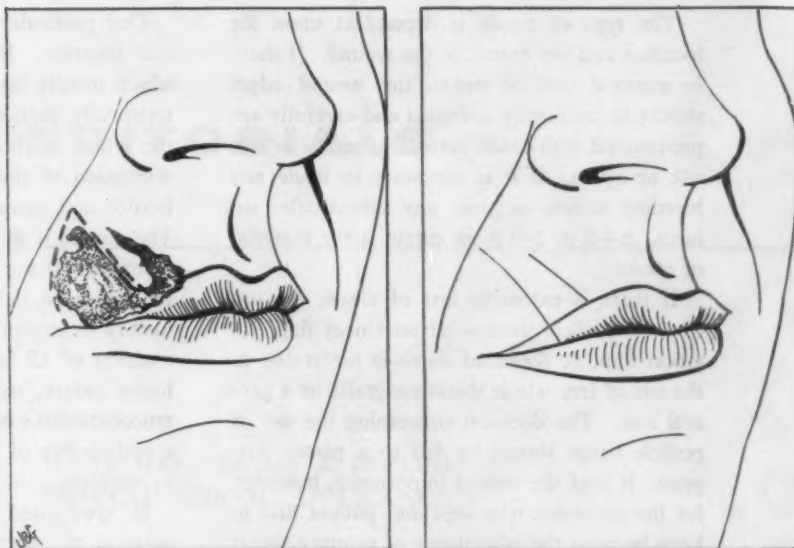
The oft-stated notion that dogbites of the face are very likely to become infected by pyogenic organisms has been shown to be erroneous. There does not appear to be any increase

in the incidence of infections in dogbites of the face than in other facial wounds that are similarly treated. The importance of this fact is that these wounds can almost always be closed primarily with impunity. To leave facial dogbites to heal by secondary intent, with resultant atrocious deformity, is inexcusable in the light of present knowledge. Human and other primate bites are a great deal more troublesome from the standpoint of infection than are the bites of the lower animals.

Other specific infections—namely, tetanus and rabies—are worthy of comment. Tetanus developing from a facial wound of any sort is an extremely rare occurrence. However, tetanus immunization still is widely accepted as an important feature of the treatment of animal bites of the face.

Rabies is an almost uniformly fatal disease which is caused by a filterable virus transmitted in the saliva of affected animals. About eighty-five percent of the cases of the disease in animals in this country is found in dogs, with wolves and cats the next most commonly affected animals. Humans seem to have a certain degree of resistance to the disease, since it has been estimated that only about sixteen percent of untreated people who are bitten by animals which are known to be rabid develop the disease. This may of course be due to failure of the animal to transmit the virus by the bite. Bites about the face have been considered the most dangerous as far as rabies is concerned, since the virus has a relatively short

A (left). Typical "Kiss-Bite" of the upper lip. Note the loss of skin laterally. The dotted line indicates the area of through-and-through excision ("V-Excision") of the traumatized portion of the lip. The small tag of skin is sutured back into its normal position. B (right). Healed result, after removal of sutures. The scars become barely noticeable in time.



distance to travel to reach its locus operandi, the brain.

The desire to destroy the virus at the point of entry resulted in the widespread barbaric cauterization of animal bites with fuming nitric acid. It has been shown conclusively that this painful medieval treatment is not a bit more effective in the prevention of rabies or of pyogenic infections than is good general wound care. The further damage to already badly injured tissues that the acid produces delays healing considerably, may lead to serious scarring, and is completely unwarranted.

An animal that bites a person should be isolated for seven to ten days. If he is all right at the end of that time, he may be safely returned to his owner. However, if he dies during that period his head should be packed in ice and shipped to the nearest (government) laboratory for examination of the brain for Negri bodies, that are diagnostic of rabies. If the diagnosis is established, treatment of the patient with anti-rabies vaccine is indicated. Most authorities today feel that vaccination should also be carried out if the wound is extensive *and* if the animal has escaped so that whether he is rabid or not cannot be determined. To administer the vaccine indiscrimi-

nately in all cases of dog bites is very dangerous and inadvisable. If the indications are in doubt, it is recommended that the local public health officer be consulted before treatment is begun.

Treatment

Good general wound care with primary closure is the treatment of choice. This consists of thorough gentle cleansing of the wound and the surrounding skin with mild soap and water, and irrigation with copious amounts of sterile isotonic saline solution. Antiseptics should not be used in the wound since they are harmful to traumatized tissue. However, their application to the surrounding skin is permissible.

Tissue which is obviously nonviable should be excised. Indeed, it is preferable to perform a complete debridement to include the skin edges and deepest part of the wound. Conservation of tissue is of major concern, however. Local block anesthesia is satisfactory for wounds of small or moderate extent in adults; but proper reparative surgery cannot be carried out on children or on large wounds of adults without general anesthesia, preferably administered via an endotracheal tube.

The type of repair is dependent upon the location and the extent of the wound. If there is minimal loss of tissue, the wound edges should be cautiously debrided and carefully approximated with small sutures of #5-0 or 6-0 silk or nylon. If it is necessary to ligate any bleeding vessels or place any subcuticular sutures, #4-0 or 5-0 plain catgut is the material of choice.

If there is extensive loss of tissue, the use of local pedicle tissue—advancement flap, rotation flap, or forehead flap—is preferable to the use of free whole thickness grafts as a general rule. The decision concerning the use of pedicle tissue should be left to a plastic surgeon. It is of the utmost importance, however, for the physician who sees the patient first to keep in mind the advantages of primary repair of these injuries and to call immediately for whatever advice or assistance he may require, rather than rely upon the late correction of deformities that might have been prevented by prompt action.

One particular type of injury deserves special mention. It is the so-called "kiss-bite" which usually involves the upper lip. Characteristically, there is loss of a strip of tissue from the white of the lip and the vermillion, with disruption of the vermillion (mucocutaneous) border and tearing of the surrounding tissue. The muscle is usually exposed but only slightly damaged. If the traumatized area is one-third the width of the lip or less, the most satisfactory treatment is a through-and-through V-excision of all layers of the lip with primary linear suture, using a small X-plasty at the mucocutaneous border. If the defect is wider, a pedicle flap of tissue from the other lip may be required.

If specialized assistance is not available initially, an effort should be made to preserve all possible tissue by careful reapproximation of the wound edges, using fine sutures. Prophylactic penicillin and streptomycin are advisable adjuncts to the treatment of dogbites in the area of the face and elsewhere.

Summary

1. The treatment of choice of dogbites of the face is prompt, thorough but gentle cleansing and irrigation, and primary closure, by careful approximation of the wound edges or the use of pedicle tissue where required.

2. With good general wound care, the danger of infection in facial dogbites is no greater than in other facial wounds.

The practice of leaving dogbites of the face open to heal by secondary intent is condemned,

as is the use of fuming nitric acid to cauterize these wounds.

3. Tetanus immunization and prophylactic penicillin and streptomycin are advisable. However, rabies vaccination should be given only in the case of an extensive wound when the dog cannot be examined, or when the dog is known to be rabid. Cooperation with the local public health authorities in such situations is encouraged.



EDITORIALS

PERRIN H. LONG, M.D.



WHAT HAS CAUSED A DECLINE IN MEDICAL SCHOOL APPLICANTS?

Practically everyone is aware of the amazing increases in our population which have been taking place year by year, for the past fifteen years or more. We, in our profession, are also aware of the fact that as a result of the scientific advances in methods of diagnosis and treatment which have developed over the last twenty-five years, the physician's professional activities have become increasingly complex and time-consuming. Furthermore, with creeping inflation which has been and is produced, and accompanied by wage and price increases, with more fringe benefits, more medical care programs, more Federal spending of our tax money for medical services, and the probable creation of a medical care program for older people by H. E. W. under the mandate just given to it by Congress, the demands for medical services by the people of the United States have and will increase by leaps and bounds. Furthermore, medical care programs financed by Federal, State, and Municipal governments, plus the medical services provided by union contracts under which the employer pays "the freight," are creating a frame of mind in an increasing number of Americans that medical care is an "inalienable right" which must be provided for them by a beneficent government. All of these factors produce a situation in which the need for more doctors will become imperative, and where in the world will they come from?

Let us take a look at the situation as it exists today relative to the quantity and quality of applicants to medical school. Data exists which indicates that recently both the *quantity* and *quality* of medical school applicants is declining. In a recent issue of *Datagrams*¹ of the Association of American Medical Colleges, a "Summary of Application Activity During the Past 13 Years" shows very definitely that while spaces for entering medical students have increased by some eight hundred since 1953-54, the

number of applicants for medical schools has remained quite static and in the last three years has declined. It should be added that during this same period of time, first level degrees granted to men by institutions of higher learning have increased by almost sixty thousand. Even more disturbing than the decrease in the quantity of applicants is the observation that the number of students in entering classes of medical schools who were classified as being "A" students in college has declined from roughly forty per hundred entrants, to twenty in the present time. Entrants having a "C" record in college compose approximately seventeen percent of first year classes today. This was what it was ten years ago.

What is back of all of this and can anything be done about it? A number of possibilities operating singly or in combinations must be considered:

I. The peak year for applicants was 1949-50. This was a period when almost a million college and university students were receiving financial aid for their education under the G.I. Bill. A year ago, a survey¹ indicated that but four percent of medical students' income was derived from Veterans' benefits. It would also appear that while the National Defense Educational Act of 1958 has not become fully implemented, time alone will tell whether it will fill the economic void which resulted when the G.I. Bill ran out. One must note that an increasing number of universities and colleges are not receiving the benefits of the NDE Act because they will not go along with the loyalty oath requirements of the Act. This may seriously impair the effectiveness of the Act. But, there can be no doubting the fact that an increasing number of college students today, either actually require financial assistance or feel that it is their due when they enter medicine. As one who has been interviewing candidates for medical school for years, your Editor is becoming more and more impressed with the apparent poverty of applicants to medical school. Where the scholarship funds needed to help such students will come from, or how many students are being kept out of

Medicine because of a lack of funds, cannot be accurately estimated. One thing, however, is certain. Medical schools as a group do not have the funds to meet the needs of their prospective and actual students for educational funds. It is stated¹ "that 40 percent of all U.S. medical schools could not . . . fulfil their students' need for educational loans" under the NDE Act. Moreover, as the NDE Act deals with "loans" as opposed to outright "grants" as did the G.I. Bill, students worry about burdening themselves with debt.

II. A second possible factor in the decline in the quantity and quality of applicants may be that "Wider and wider ranges of vocational opportunities in professional, technical and scientific fields have opened up over the years and will open up in the future to men who possess a baccalaureate degree. As a consequence, decreasing proportions will have an interest in Medicine."² This statement may well be correct. Certainly, the fantastic developments in physics, chemistry, theoretical mathematics, exotic forms of engineering, electronics, "atomics," etc., which have occurred in the last fifteen years, have been eye-catching to the younger generation. The requirements in these fields for trained personnel are enormous and the shortages of such personnel great. One only has to look at the pages and pages of advertisements for scientific personnel which appear each Sunday in the financial section of the *New York Times* to verify this observation. This demand, plus the glamor of the jobs and the immediate financial rewards (1959 graduates of a smaller Eastern liberal arts college had the following average starting salaries: B.A. degree, \$4800; B.S. degree, \$5300) in these newer fields of scientific endeavor, may be a real factor in attracting college graduates away from Medicine. It takes from nine to thirteen years of collegiate and medical education before the average doctor has a gross income of \$5,000 per year.

III. Another contributing cause to the decline in medical applicants may originate from the "welfare and vocational-mindedness" of the directors of our public school system. This

appears to have resulted from what now appears to be the erroneous and unfortunate educational philosophy which permeated the teaching in a number of our teachers' colleges in the decade from 1930 to 1940. This leads to a softening in the educational approach of the members of the high school body as a whole. This has had definite repercussions, especially since 1945 as far as collegiate education is concerned. Conditioned by a false philosophy, the student finds it far easier to take a course in "Old Roman Band Instruments" or "Creative Listening" than, let us say, "Calculus, I." This deficit in our educational system has been clearly pointed out by Admiral Rickover and other outstanding individuals, but unfortunately the carriers of this "virus of softness" are resistant to ideas which do not conform with those they absorbed twenty-five years ago. To eliminate the "virus", the purgative must be harsh and strong in its action. There is little evidence that more than a mild laxative has been administered to date by the Doctors of Education.

IV. Last but not least, let us take a look at ourselves both as individuals and collectively as a profession. Historically there were three "Learned Professions;" Theology, Law, and Medicine. Members of these three professions constituted the intellectual community in all countries where they existed. Membership in a profession was greatly prized. Now the hard facts are that today, your Editor believes, the Law has practically forfeited its claim of being a "Learned Profession" and Medicine is fast losing its status as a "Learned Profession." By its orientation and practices, Medicine ap-

pears increasingly to be regarded by many as a trade. Why is this? Too much concern about the economics of medicine and too little with the Art. Too many members of our group appear to be "Status Seekers" where the visible evidence of achievement is a Cadillac rather than a reputation for learning and skill. As a matter of record in this respect, one large local medical society has asked its members who own Cadillacs not to display any insignia or licenses which might identify them (the Cadillacs) with the medical profession. This should make all of us pause and take stock. Have we become so blatant in the display of our possessions that the public distrusts us? Is the laity losing faith in our aims, our code of etiquette, and our personal and professional ethics? Are young people coming to regard our work as a trade, which has one major advantage, i.e., that it permits an individual to pass from one economic and society level to another, in one giant step? Should we not all return, not to the horse and buggy days, but to the professional and ethical standards which we have all sworn to when we took the Hippocratic Oath? Could it be possible that idealistic youngsters are being repelled from becoming doctors because of the increasing down-grading of our profession in the eyes of the people to the level of a trade? Should we not do all in our power to restore our standing to that of a "Learned Profession?" Your Editor believes that this may well be one answer to the question, "How will we attract able young people to a career in Medicine?"

1. Datagrams, Vol. 2, No. 4, October 1960.

2. Quoted in Reference No. 1.

REHABILITATION—FACT OR FANTASY?

Well known to all who practice medicine is the advancing age level of our population, the increase in the frequency of traumatic, disabling highway accidents, and the increasing incidence of cardiac and cerebrovascular disabilities. Coexistent with this pic-

ture is a term that is bandied about the country club lounges, doctors' scrub rooms, civic luncheon meetings and hospital corridors. This term is rehabilitation.

Let us now examine what this term implies and to what use it is being utilized. Rehabili-

tation should mean to all physicians, a process to increase useful functional activity; not necessarily the return to employment or household duties. I repeat, it is a process to increase useful, functional activity.

Depending on the background of the physician, and to some extent the geographical area of his practice, rehabilitation may be thought of in terms of large units including all types of reconstructive equipment, as well as a full array of health personnel, or rehabilitation may be thought of only in terms of a modest exercise conducted by a practical nurse or the patient's relatives in a remote nursing home setting or in the patient's home.

Of practical importance is that all physicians, regardless of their type of practice, should be oriented to think in terms of rehabilitative effort, and this frame of reference should spill over to allied health workers.

Assuming that this orientation and awareness of rehabilitation is accomplished, it then becomes extremely important to begin the program when the original disabling condition occurs, and not wait weeks or months, before commencing psychological as well as physical reconstruction activities. These activities not only involve the patient, his physician and other members of the health team, but include the patient's family and often his or her business associates and friends.

Patient after patient come through medical divisions of welfare agencies, who are a lesson in the fact, that the time to begin rehabilitation had long been missed and now about all that can be done is to provide needed custodial care.

Frequently, I feel physicians and lay people alike have set their sights too far ahead as to what the rehabilitation goal should be. Too often, return to gainful employment is envisioned when rather than this resumption of self-care, to resume part or complete activities of daily living, is all that should be strived for, at least at the outset. This tendency to look for too much in the way of results, leads to early discouragement on behalf of both physician and patient, and perhaps abandonment of ef-

fort and loss of psychological motivation may be the result. The patient and his family may regress into a frame of dependency and much will have been lost.

Rehabilitation is a long process. Many months are usually involved. The road is fraught with pitfalls and obstacles. Appraisal and realization of these facts are important in the successful rehabilitation program.

Physicians need to have the opportunity to learn of techniques of rehabilitation which are effective and yet simple and inexpensive to apply. Looking over program agendas of several medical societies, the subject of rehabilitation was notable by its absence.

The conditioning of a patient to a period of rehabilitative effort begins, as stated before, at the time reparative therapy begins. The entire program involves conferences with the family, employer, and nursing home operator, as to what role they can be expected to play. Usually these participants are very willing to assist but they need guidance and encouragement. This can be properly offered by the physician realistically oriented to rehabilitation.

If our objectives are practical in terms of goals for rehabilitation patients, it becomes very obvious that savings in terms of manpower used to care for these people would be tremendous. If fifty percent of the people now receiving maximum care in nursing homes could be rehabilitated to complete or partial self-care, the savings in manpower and expenses would be significant in the state of Wisconsin alone. Personnel so released could be utilized to care for acute medical and surgical patients, to say nothing of the improved situation in many private individual homes where the daily care of an invalid by the homemaker must be assumed to the detriment of the care of other members of the household.

Employers are also interested in the rehabilitation program. Often the patient is one who has years of valuable experience in business know-how, or a specific job operation. Unfortunately, union structure is sometimes such that the employer is unable to reinstate the patient to partial or restricted employment duties.

Most people do not like to be dependent and would figuratively jump at the chance to be rehabilitated. I feel the entire subject of rehabilitation has often been ballyhooed out of all realistic proportion. I feel also that what is needed is a dissemination of information on practical and realistic rehabilitation techniques out to the grass roots; to the practicing physician, visiting nurse, nursing home staffs, and other convalescent care facilities, as well as to the patient himself, his family, and associates.

Who should be instrumental in this type of

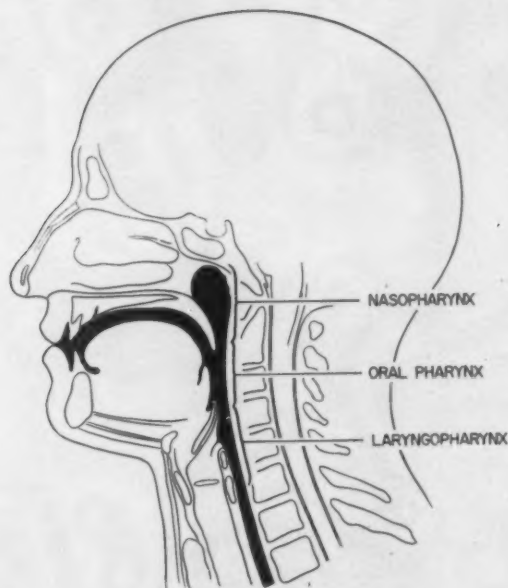
approach? My feeling is that this should be a joint project for physical medicine organizations, local medical societies and state welfare and vocational rehabilitation agencies.

When this type of program is functional, then rehabilitation moves out of the fantasia and becomes realistic factual achievement, with benefits which can be heartwarming and measurable.

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CLINI-CLIPPING



The three divisions of the pharynx





**Remember
When...**



Remember when . . .

The well dressed young dental or medical student wore winged-collars and sported canes?

Webster's Unabridged Dictionary always had its own stand?

Students sent home pictures such as this to demonstrate how serious they were about their work?

Dental drills were all worked by foot?

When a room in a Baltimore rooming house looked just like this? (Look at the fringe.)

Eye shades were used?

One prominently displayed the Bible in all pictures destined for home consumption?

Photo: Courtesy of
Dr. Martin M. Teague
Laurens, S. C.



THE LONG AND SHORT OF IT

From Your Editor's Travels and Reading

THE DARTMOUTH CONVOCATION ON THE GREAT ISSUES OF CONSCIENCE IN MODERN MEDICINE

Shortly after John Sloan Dickey became President of Dartmouth College about thirteen years ago, the course in *The Great Issues* was inaugurated and was made a required course for all senior students (approximately six hundred and fifty men). This course, which is admirable in its conception, has three main educational aims. (1) To confront senior Dartmouth students with the important issues of our time with the intention and hope, that by doing so, a heightened sense of public-mindedness and a broader sense of the responsibilities of an educated man will be developed in these students. (2) By requiring them to use the sources of information which will be commonly available to them in later life, the course helps to make the transition from classroom instruction to the more informal lifelong education in which the intelligent adult citizen engages. (3) By providing a common intellectual experience for all seniors, the course aims to foster an interchange of ideas on the common problems facing all citizens, thereby providing a balance for the specialized work of the last two years of college.

Obviously, it is impossible to define what constitutes a "great" issue in simple terms. But "great" issues have certain characteristics by which they may be identified. They have no

simple answers. It is something about which sound and reasonable men and women can, and have disagreed vehemently. Various answers have been proposed, none of which are universally satisfactory. The disagreements arise not from the nature of the facts, but from interpretations of the facts influenced by ethical and moral concepts. Uncommonly are "great" issues current events. Generally, they have long histories, but they would not constitute themselves as "great" unless they were of notable importance in the present time. Finally, as unsolved problems they will probably remain with us for some time. A "great" issue has a moral and ethical core, historical depth, meaning for the present, and a probable projection into the future.

In the actual course work, the issues which are studied and discussed vary from year to year. Part of the course is devoted to domestic issues, part to international issues, and part to the problems of cultural, moral, ethical and religious values. Once a week during the academic year, a visiting lecturer speaks on an issue with which he is associated by special knowledge and practical experience. These speakers are drawn from all over the world and from many callings. On the day following his discussion, the speaker meets the class for an active question period. Each senior keeps a personal record of his reactions to the issues which are discussed, thereby developing his

own ideas and points of view. Interestingly enough, the major text in the course is the *New York Times* which must be read daily throughout the academic year. In addition, a wide variety of publications are made available to the students. Each member of the course must engage in a "project" from which a lengthy paper emerges which deals with his thoughts on and evaluation of his chosen subject.

Out of this course, developed the idea of holding occasional convocations on "Great Issues." The first Convocation on "Great Issues" was held in 1957, and its discussions were directed to the problems of public policy in the Anglo-Canadian-American community. This meeting was convoked on the tenth anniversary of the "Great Issues" course.

The present Convocation was arranged to be held at the time of the laying of the cornerstone of the new Medical Science Building. The Dartmouth Medical School was founded in 1797, and until 1914 was a four-year school. In thinking of the role of the Dartmouth Medical School in the future much thought has been given and many consultations have been held relative to the question of whether or not it should return to a four-year status. The decision was reached to remain a two-year school, which, in your Editor's opinion, was a wise one. To increase the curriculum to four years would entail an initial need of \$40,000,000 or more. This would be but the beginning of financial demands. Furthermore, the four-year medical schools in this country currently face a deficit of several hundred students, due to attrition, at the end of the second year. Dartmouth is aiming to provide as far as is humanly possible pre-clinical education of the highest type. This effort will not only be welcomed by the four-year schools, but also will be watched with great educational interest, to see what a pre-clinical faculty, resident in a highly academic environment, and free from the distractions and frustrations which arise so frequently in such a group from its contact with increasingly omnivorous clinical faculties, can develop in the way of new approaches in the teaching of the basic medical sciences.

The Convocation and Its Members

The Convocation was held on September 8th, 9th, and 10th, and was moderated by Rene J. Dubos of the Rockefeller Institute. The convokers were:

Brock Chisholm, Director-General, WHO, 1948-53

Mahomedali C. Chagla, Lawyer and Indian Ambassador to the U.S.A. and Mexico

Ward Darley, Executive Director of the Association of American Colleges

Ralph Gerard, Professor of Neurophysiology, Mental Health Research Institute, University of Michigan

Aldous Huxley, Author, Essayist, and Philosopher

George B. Kistiakowsky, Special Assistant to President Eisenhower for Science and Technology. Professor of Physical Chemistry, Massachusetts Institute of Technology

Walsh McDermott, Professor of Public Health and Preventive Medicine, Cornell University Medical School

H. J. Muller, Nobel Laureate, Geneticist and Distinguished Service Professor of Zoology, University of Indiana

Wilder G. Penfield, Director, Montreal Neurological Institute

Sir George Pickering, Regius Professor of Medicine, Oxford University

Sandor Rado, President, New York School of Psychiatry

Sir Charles (C.P.) Snow, Scientist, Author, and Philosopher

Warren Weaver, Vice-President, Alfred P. Sloan Foundation

The Background of the Convocation

"Can scientific civilization and its leaders ignore the ethical and emotional values that men prize above life itself?" Recent advances in physical and medical sciences have enabled man to gain more and more control of his own destiny. These controls have created important moral questions, especially for the medical profession which utilizes these advances, because certain by-products of this new knowledge are

harmful and even lethal. It is fitting that the Dartmouth Medical School, now revitalizing its program to expand its contribution to medical knowledge, and Dartmouth College, dedicated to the partnership of 'conscience and competence' should sponsor a convocation devoted to a definition of these questions and discussion of their possible solution."

Opening Assembly, Evening, September 8th. The Convocation was opened promptly at 8:30 P.M. (One of the extraordinary things about this Convocation was that it was kept exactly to its time schedule.) The first speaker was John Sloan Dickey, President of Dartmouth. After welcoming the convokers and explaining the history and purpose of the Convocations on "Great Issues," President Dickey pointed out that "any man who aspires to minister greatly to any human ill or need, must be more than a merely skilled professional. Liberal learning is that transcending more which, however it is acquired, gives all callings the possibility of greatness. On this campus liberal learning and professional medical studies have shared a propinquity of purpose as well as of place for 163 years."

President Dickey then introduced Dean S. Marsh Tenney of the Medical School who spoke briefly on "Medical Science and Moral Value." He pointed out that "medicine was the first profession to join firmly onto a natural philosophy but . . . has only recently progressed . . . into an era deeply concerned with quantity and circumstance. Though its foundations have become more rational, its practice—that supreme welding of science and humanism—is said to have become more remote and indifferent to human values; . . . medicine has been forced to remind itself that human factors are often determinant." He went on to discuss the difference between what science is and science does, and stated that "'science continues to be what it was in Greece, conceptual thought but mediating between consciousness and nature.' Science tells us what we can do—never what we should. While science itself cannot be immoral, neither can it establish a morality. Its objective posture precludes competence in the

realm of values." Dr. Tenney said that Loren Eisely has commented on this problem as follows: "The Western scientific community, great though it is, has not concerned itself enough with the creation of better human beings, nor with self-discipline. It has concentrated instead on things, and assumed that the good life would follow. Therefore, it hungers for infinity. Outward in that infinity lies the Garden the sixteenth century voyagers did not find. We no longer call it the Garden. We are sophisticated men. We call it vaguely progress." Dean Tenney went on to say that the purpose of the Convocation "was to examine the issues of conscience in that 'progress.' The objective is not simply the question of survival or extinction of man. But it is what *kind* of survival? A future of what *nature*?"

Dean Tenney then introduced the speaker of the evening, Dr. Rene J. Dubos, Professor and Member of the University of The Rockefeller Institute, who spoke on "Science and Conscience in Modern Medicine." Dr. Dubos initiated his discussion by noting that "the greatest difficulties to the achievement of health" (which he defined as "a physiological state fairly free of pain, and permitting the individual to function adequately . . . in the social environment of which he is a part." Other definitions of health were proposed during the Convocation, thereby indicating that we are not certain of what health really is.) "will not come from a lack of scientific knowledge, but rather from social limitations which create great problems for medical conscience." Obviously, there are areas in medicine concerning which we know little, but if we knew all the answers, scientifically speaking, we still might have major disease problems because of poor social environments. As the speaker pointed out, with tuberculosis, malnutrition, parasitic and enteric diseases, malaria, etc., little real "progress can be made until sanitation and the general standard of living can be raised to a decent level." In most of the so-called underprivileged countries, the problems are not medical but rather social and economic. We could eliminate or prevent an enormous amount of disease in our

world, if our collective social, and economic consciences gave us the green light. For example, Dr. Dubos took the problems of pollutants of air, water, food and soil. Here the problems are well defined *and if one wants to pay for them, the solutions are at hand*. But as Dr. Dubos pointed out "it is instructive to read Congressional Hearings . . . on Environmental Health Problems. In answer to a plea for enlarged Federal support to the program . . . Representative John E. Fogarty . . . pointed out to Surgeon General Leroy Burney that 'environmental health doesn't seem to ring a bell with people, to the average person, if you start talking environmental health, they are just not interested.'" There can be little doubting this attitude, even though as pointed out later in the Convocation that between the population explosion and the rise in the pollutants in our environment, there will be created for our grandchildren and their children, "the worst time of troubles ever faced by the human race." We just don't seem to be able to arouse public opinion, which unfortunately almost always lives in the present or immediate future, to take a long range view of what we have to face. Instead we have to live with such nonsense as was witnessed a year ago, when as a result of a desire for publicity, or because of political ambition, or because of hysteria, or of panicked unreasoning advice by his inferiors (I do not specify which), the Secretary of H.E.W. interdited the sale of cranberries, because allegedly they had been contaminated with a carcinogenic agent (carcinogenic for odd experimental animals), thus causing million of dollars of loss in money, and heaven knows how much irreparable damage to the cranberry industry. As Dr. Dubos pointed out "the recent furor is almost a caricature." He goes on to say "it seems to me, society will be willing to take a few chances for the sake of lower costs of food production."

Another factor affecting the social choices which face our people today in determining the direction of medical research is the shortage of scientific personnel. Today, there is little doubt but that vaccines could be made for most

viruses. But costs and shortage of personnel dictate that a social choice must be made as to the varieties of infection for which protection is most desirable for the individual and the group. As Dr. Dubos queried, "should emphasis be placed on diseases which are fatal or crippling, but affect only small numbers of individuals? Or should priority be given to ailments of the upper respiratory tract, rather mild and self-limited, but of great economic importance because they affect a large percentage of the population and disrupt industrial production and other national activities?" It is of interest and has been for many years to your Editor, that the social choice carefully developed by masters of public relations, by astute appeals to the emotional side of the American people, and backed by donations running into the many millions of dollars has been made in favor of research and production of vaccines for a disease which on the whole is of little importance except to the individual who has it, or his family. Poliomyelitis obviously is the disease we are talking about.

In the same vein—Many years ago, Dr. Wade Hampton Frost stated emphatically that if all patients who had open tuberculosis could be quarantined, tuberculosis would disappear in one generation. As Dr. Dubos reported, "it would be practicable to prevent new tuberculosis infection from occurring in this country by administering chemotherapy to spreaders of bacilli and thus render them non-infectious . . . the scientific techniques . . . are available . . . the present community has to decide whether it is willing to undertake the huge and expensive task of tuberculosis eradication from which it will obtain no appreciable value." (The "dividends" would accrue to the next generation.)

The speaker next took up the problems of saving or prolonging lives and by this action increasing the burden on the community. He pointed out that the "ethical difficulties [for the physician and society] are bound to become larger" because of the increasing ability of the physician to prolong "biological life in individuals who cannot derive either profit or pleasure

from existence, and whose survival creates painful burdens for the community." He goes on to point out that we are constantly increasing the survival rate of those "whose very survival is dependent on exacting medical supervision." As more and more persons who need medical supervision accumulate, and more and more specialized medical personnel is withdrawn from the general pool to take care of them, there can be little doubting but that "some aspect of medical ethics will have to be reconsidered in the harsh light of economics."

In concluding his presentation Dr. Dubos stated, "Although I have had these views in mind for a number of years, and have expressed some in writing, I feel embarrassed at discussing them in public. The reason is that despite my efforts, I probably seem to take attitudes which are in reality profoundly distasteful to me. First is the fact that I appear to deal with human life as if it were merchandise, the production and maintenance of which must be evaluated against economic cost and social conveniences: whereas, I believe that human life has spiritual values that far transcend material considerations. I seem to be pessimistic, or at least skeptical, as to the ability of mankind to overcome the dangers that prosperity and social advances unquestionably bring in their train; and yet I know that mankind has experienced many situations far more difficult than present difficulties, and has taken them in its stride. And finally, I seem to foster an anti-intellectual attitude by expressing some doubts as to the effectiveness of certain scientific pursuits, although I cannot possibly envisage retreat from reason and from science. Let me conclude by stating once more my conviction that experimental and clinical science can solve the biological aspects of almost any medical problem, but that in practically all cases, the solution will be very costly money-wise and especially in terms of specialized talents. While it is possible in theory to deal with all new health problems that will be created by our rapidly changing social and technological order, any possible measures of control will have to be made by society as a whole, because they

involve value judgments. More and more, medical science will need to be integrated into social conscience."

Dr. Dubos' address was enthusiastically received by an audience which occupied practically every available space in that area of Alumni Gymnasium which was used for the sessions of the Convocation. Following this session, a reception was held on the lawn in front of the gymnasium, and it was very pleasant during that warm, late summer evening to greet old friends and to make new ones.

Next morning after a very excellent breakfast at Thayer Hall (it must be said that every meal which we had in this college dining room was very tasty), and a short walk around the campus, we all trooped back to Alumni Gymnasium for the first panel discussion on "The Issues of Man and His Environment."

The Chairman of this session was Mr. Warren Weaver, who sketched certain of the environmental problems which may affect man. Among these are: (1) the adulteration of things used personally, i.e., food, drink, cosmetics, etc.; (2) air pollutants; (3) internal pollutants, i.e., transfusions, antigens, etc., when they produce reactions; disturbances produced in the ecological balance by sprays, etc.; and the pollution of air, land, water, milk, and food by radioactive material. He stressed as did later speakers, the continuing accumulation of these pollutants and the hazards they will produce for succeeding generations. He also brought into focus a subject which was repeatedly referred to and discussed during the Convocation, namely, Statistical Morality. This concept deals with the responsibility for deaths reported statistically. For example, if we say the case fatality rate is 1, 10, or 100 in a million from X-disease, on whose conscience should these anonymous deaths lie? Someone, or a group of individuals, or even society itself must be at fault when death occurs, and society should and must develop a collective conscience in respect to this situation. By doing so, progress in the prevention of suffering and death will be achieved.

The first speaker was Professor George B.

Kistiakowsky, a physical chemist, so he said by training and avocation. He pointed out that in the last hundred years, modes of communication between the individual sciences have become so well-developed, that boundries have almost ceased to exist, citing biophysics, molecular biology cybernetics, etc., as examples. As a result "basic scientific knowledge gained from research on man's environment is more and more being used to solve practical problems of medical progress." He went on to discuss the spectacular success of this country's advances in technology. However, despite the enormous growth of basic research, currently, "the demands of our expanding technology are outstripping the supply of new ideas and new basic knowledge that comes from science." A greater effort must be put into basic research. But, he pointed out some individuals think stepping up basic research programs is not the answer in medicine, rather "well-coordinated mass attacks on particular diseases are the highest priority jobs . . . Which way, then, should we move?" He next discussed "the effect of technological developments on human environments and the conflicts this might create between the health of the individual and the 'welfare' of society." He used the radiation problem as an example. Up until 1895, man was exposed only to ionizing radiation from cosmic rays and naturally present radioactive substances. Then came the development of the X-rays and of the use of radium, thus increasing the exposure hazards of man. Lately, we have had the development of nuclear power, and the use of radioactive (isotopes) substances in industry. Thus, the chances of exposure to ionizing radiation have been greatly increased. Possible permissible exposure levels to man-made radiation have been established, which are comparable to the level of natural background radiation. Despite this, at the present time these established exposure levels represent calculated guesses and in the end we may find that undesirable biological effects have been increased. However, if we insisted on zero levels of exposure to man-made radiation, our national security would be hopelessly com-

promised, and serious harm would come to important technological developments. So we try to do the best we can with the knowledge in hand.

Furthermore, what about food chemicals? For thousands of years we have consumed salt which usually contains a trace of radium, a carcinogen. Lamb frequently contains selenium (a carcinogen) but we love lamb chops. There is evidence that prolonged therapeutic dosage with diethylstilbesterol is harmful, yet it is used to speed the growth of steers. Without its use, beef prices would rise, and other undesirable factors would develop. As the speaker said at this point, "Where, then, is the happy medium? Today for example, we don't have enough scientific knowledge of food additives to make valid decisions." Professor Kistiakowsky ended his discussion by stating, "To us, summary decision is not acceptable and so we seek solutions which necessarily are compounded of ethical, social and scientific considerations."

The next speaker, Dr. Walsh McDermott, initiated his discussion with a consideration of the problem of chemical refuse as such pertains to the pollution of air, water, food, etc. While we might like to forget it, it is with us, and it will not get lost. Furthermore, it is and will become increasingly a menace to our health, which Dr. McDermott defined as being the degree to which a person can operate in his environment. Pollutants, many times, cannot be seen, tasted or smelled. Often it is impossible to escape them. In ten years, seventy-five percent of the people in this country will live on ten percent of the land. Pollution of the air over the supercities will be a major problem. Sulphur compounds and hydrocarbons both accentuate the progression of emphysema (chronic bronchitis). Also, statistical evidence exists that lung cancer is higher in inhabitants of industrial areas. Furthermore, evidence is accumulating that the survivors of the Donora, Pa. smog episode of several years ago are dying at a more rapid rate than one would expect. Dr. McDermott stated without reservations that the probabilities of serious damage in the next

generation from exposure to the accumulation of pollutants are great. Every effort should be made to plan within the conscience of the community to bring about a maximal decrease in air pollution.

Following the first panel discussion, the ceremony of the laying of the cornerstone took place at the New Medical Science Building. Dr. Ward Darley was the principal speaker. He pointed out that the Flexner report of 1910 "was really precipitated by the fact that the then-developing body of scientific knowledge was not being translated into medical practice by the then-existing system of medical education." Today a similar dichotomy is arising, for entirely different reasons. Medicine is progressing so rapidly, scientifically speaking, that it is hard for the teacher, student and physician to keep up. No one wants to slow down research. It would be unwise to increase the educational period. Hence, the solution apparently lies in selecting "those teachers and learners most apt to succeed in the fast-moving medical scene and also research that will permit evaluation of the degree of objective attainment, particularly in terms of student accomplishment and the relative effectiveness of each combination of subject matter, teaching method, and practical frame of reference which is involved." Dr. Darley stressed the quantitative need for increases in medical students and, hence, physicians. Medical graduates must be increased from eight to eleven thousand by 1975. To meet this increase, facilities equivalent to thirty-five new medical schools must be provided. Dartmouth itself provides physician manpower to take care of an increase of 25,000 people per year. In concluding he stated, "In my opinion the constellation of resources now present upon this campus unfettered by any status quo; far removed from urban distraction and closely associated with a hospital which, unlike its usual urban counterpart, offers academic opportunity free of the complications of clinical competition, provides Dartmouth with the opportunity—almost a mandate—to establish the 2-year school as a significant part of this

nation's system of medical education and this upon the basis of ideals and educational standards that are badly needed when we are struggling to keep pace with rapid medical progress."

The afternoon's session was devoted to a discussion of "The Issues Concerning Man's Biological Future." It was chaired by Sir George Pickering who opened the discussion by stating that, as he saw it, three problems have arisen because of what we have done and what we might do. What we (medical people) have done has created a large and serious problem relative to population, and some experts believe that in two generations (for our grandchildren), population may outrun the food supply. Secondly, we have created the problem of an increasingly large number of terribly uncomfortable, chronically ill people, whose lives bring neither respite from suffering, nor any pleasure, or who exist, healthy from an alimentary point of view, but otherwise in vegetative states and who live indefinitely due to our ministrations. All of us know that the families of these special individuals find these situations becoming increasingly disagreeable, and society finds this disturbing. He posed the questions: Is the issue up to the doctor? Do we have two kinds of euthanasia? He answered only in part according to our views by saying that it's not fair to ask the doctor to make the decision. Well, in your Editor's book, if the doctor doesn't, I don't know who will. As I have pointed out before in the editorial pages of *MEDICAL TIMES* (May 1960), what was being discussed by Sir George was not euthanasia but rather masterful, tender, and understanding medical care. Furthermore, no one has been convicted in any English-speaking court of euthanasia. Your Editor believes that the family has a right to ask the doctor what to do, and as a corollary, he believes the doctor should always use his best judgment in respect to the feelings, comfort and care of his patient, as well as discharging his proper duties to the social community of which he is a member. Your Editor's revered Chief, Dr. Francis Weld Peabody, once told him, when he was an intern

in the Boston City Hospital, "Your first duty to your patients is to see that they do not suffer, unnecessarily." That directive, so Hippocratic in its concept, should be over the portal of every medical school and hospital. Sir George's third problem had to do with eugenics and he discussed Dalton's view that society should breed better human beings. He finished his introductory remarks by saying that he believed Dalton's views relative to the problem of eugenics has become increasingly urgent in the present time.

Dr. Brock Chisholm opened for the panelists by discussing conscience. In his opinion, conscience is something that is not questioned as most people consider it the ultimate authority. The formation of conscience is greatly influenced by the society into which the child is born, and especially developed by the mores of the family. However, it must be remembered that conscience is not to be relied on, unless it is known to be reliable in terms of each present situation. He also made the astonishing statement that conscience is fully developed by the time the child is seven years of age. He went on to point out that the modern individual must be able to live under any circumstances. It might be added that Dr. Chisholm defined health as "a state of complete physical, mental and social well being." This apparently is the definition of the WHO, and has been approved by ninety-two nations, an occurrence which caused Dr. Dubos no end of mirth when he discussed "health" later on.

The next speaker, Professor Hermann J. Muller, is, as every scientist knows, a Nobel Laureate, and a world-famous Geneticist. He stressed that now, due to the fact that physicians now know how to keep certain people alive, the genetically inadequate grow to adulthood (previously they died early) and have the power to reproduce which they were unable to do formerly. Therefore, the genetic quality of life is deteriorating, because the exercise of modern medical practice defeats its own avowed purpose of providing means for a healthier race. As the vast majority of genetic mutations are detrimental, to maintain the cur-

rent genetic level of the human race requires that reproduction be mainly carried on by those who are strong from the genetic point of view. Mutations occur frequently. One of five has new mutant genes arising from his parents. He vividly depicted the need for more meaningful education in genetics, stating that this need must be met so succeeding generations will be more and more adequate from the genetic point of view. Professor Muller concluded by saying that we could reverse the downward genetic trend by using "banked" sperm from genetically superior males for artificial insemination. As is well known, this is an almost universal practice among cattle breeders both for meat and for milk today. It is by the use of this method that the cattle industry has made such an outstanding record. Your Editor has a friend who was an outstanding pioneer advocate of the use of banked bull sperm for building up breeds of beef cattle. He is most enthusiastic about it. But you just can't discuss the possibilities of donor-type, artificial insemination in human beings with him. That procedure to him is sinful!

Now the discussion of the remarks of the three preceding panel members was really confusing. One got the feeling that those entering the discussion believed one thing, but spoke about another. This started out when Dr. McDermott, after first making the statement that he was not a member of any organized church, announced that he was in sharp dissent with what had just been said and in an emotional harangue stated that population control on a pragmatic basis was unconvincing. He averred that the birth rate was not going up because of modern medical practices (none of the speakers had said this. They inferred that the total population as a result of sanitary and medical practices was increasing rapidly). He did not believe he said that the population would outrun the food supply. That standards of living mean nothing in an Indian village, and ended his appeal with the question, "are children not an asset in any country?"

Aldous Huxley then spoke up relative to the importance of genetic factors. As he pointed

out, the original Eugenics Society was a ferocious group, and that to permit the ideal social reformer-geneticist to function properly in making genetic inheritance outstanding, one needs to study and find out about the fundamentals of environment which would best support such individuals. He made the observation that one of our major stumbling blocks is that human beings do not like to plan for or explore the distant future, and then made the interesting remark that from his studies of

delinquents, he finds them markedly deficient in time sense.

Dr. Rado spoke up and said that he believed that we are on the threshold of an explosion in biology which will make it necessary to take the quality of human beings into account, as well as their quantity. Obviously, he pointed out, we must have intelligence and reason rule our emotions. To do this, we must know how to select properly from available information.

To be continued next month.



PSYCHIATRY AND INTERNAL MEDICINE

The phenomenologic approach to medical interviews consists in understanding and acceptance of the patient's account of his style of life.

A large majority of patients welcome such an interview. Less than 0.5 percent object to it. One percent of diagnostic mistakes may be made because of it, and will be reduced by awareness of the dangers.

Fifty-four percent of patients consider themselves improved. On critical evaluation after personal follow-up study, 26 percent are very significantly improved.

The percentage of improvement is acceptable since most of the inner reorganization is done by the patient, the interview being the occasion for it. This improvement of emotional distress, easier patient communication, earlier diagnosis of mental disease and facilitated referral for psychiatric care more than justify the small risks incurred and the additional time added to the medical consultation.

ROBERT STERLING PALMER, M.D.

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The Physician and Partisan Politics

HAROLD J. ASHE, Beaumont, California

Politics, says the author, should be kept out of the physician's office. However, as a community leader, he should give vigorous support to his political views—but at the proper time and place.

Some years ago, the then head of a barber's association made the nation's newspapers with his advice to association members. Anticipating a hard-fought election campaign, he urged barbers to talk politics to their cash customers.

Perhaps being over eager for publicity, he insisted that the tonsorial business would not suffer any ill effects. At the same time, he strongly hinted that barbers are peculiarly blessed with political wisdom bordering on the oracular. There are cynics who would doubt the accuracy of either conclusion. (This is observed with all due respect for the political science teachers staffing the nation's barber colleges.)

As the 1960 national and local elections now warming up come to a political boil, it is likely that more and more partisans will be impelled to grab the nearest soap box. They'll be in there swinging their best oratorical Sunday punches, even if these are puny and fall far wide of the mark. And in there swapping political blows will be a good many physicians. This, in itself, is fine, and in the best American tradition.

However, some physicians may become overzealous in their political advocacy. They may put in jeopardy much of the good will they now enjoy among their patients. This is a sad commentary on American politics and does not speak well for our sportsmanship, but that's the way it is.

Political partisanship, it's worth repeating, during major election campaigns is in the best American tradition. That Americans can participate in election debates at the town-pump and cracker-barrel level is one of the most priceless heritages of citizenship. It should be freely exercised and respected.

What Rostrum?

Wisdom should dictate that indiscriminate discussion of explosive political issues should be discouraged during office hours. Even the most casual partisan comment can easily trigger an explosive response; or, worse yet, the response may be a silent one that feeds upon itself.

Ordinarily, a professional office is not a suitable arena in which to discuss politics, and least of all with patients. In such circumstances, patients are in effect a captive audience of the physician, just as are customers in the barber's chair. They cannot easily escape. This circumstance may only heighten their resentment. Moreover, because of a physician's professional status and his educa-

tional background, some patients will feel at a disadvantage in carrying on a discussion of political differences and views.

Brief Employees

A physician's office employees may hold strong political views. It may be wise to brief them on the wisdom of restraint in expressing these views in the office. This briefing, in itself, may require some diplomacy on the part of a physician. He should make it clear that he is not trying to muzzle or discourage political beliefs and loyalties. He should emphasize that he's only concerned that political views not be foisted on his patients. When employees do so, such views become his views, whether or not he shares them. Regardless of political affiliation, whatever is advocated will find about half of the patients in disagreement, vocal or silent.

The foregoing is not to suggest that physicians should be Casper Milquetoasts in the upcoming election. As Americans, physicians are entitled to their political views and their party allegiances. Certainly, in this year 1960, physicians have a very great stake in politics. Both as individuals and as physicians, they have both a right and a duty to try to influence the outcome of local and national elections.

Neither is it suggested that physicians be noncombatants in the political arena or attempt to wear the cloak of disinterested observers. What is suggested is that restraint be used in respect to *when* and *where* partisan politics are discussed. Because a patient values a particular physician's professional skill this is no assurance he will welcome the physician's gratuitous political opinions. The respect in which, until then, the physician is held by the patient may suffer.

Certainly there are many outlets for a physician's participation in political campaigns other than his limited circle of patients. Innumerable physicians have been active in politics without any apparent ill effects on their practice. However, without exception, these physicians have made a genuine effort to keep

political discussion to a minimum in the office. They discourage the use of their offices as informal party headquarters and gathering places for political cronies. Reading tables are used for periodical literature, period. Campaign literature is taboo. All are liberal in supporting party war chests.

"My party never lacks for plenty of vocal advocates," said one physician, "but it can always use more funds to publicize issues. That's one way I always help."

The chances are that this physician, in his quiet way, makes more converts to his party than many a physician who resorts to argument in an office. He doesn't try to conceal his political connections. Neither does he flaunt them while rendering professional services. That's the difference between earning the respect of patients and alienating them.

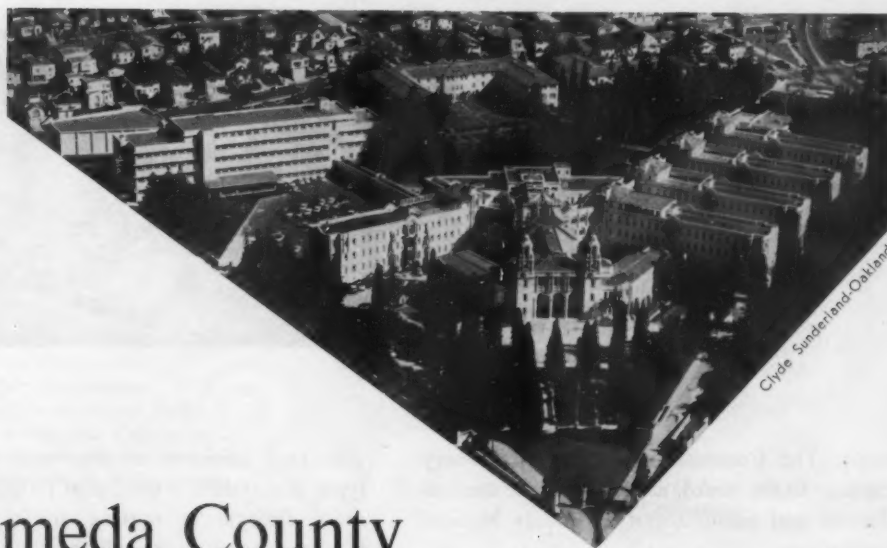
The Exception

Certainly there are exceptions to the foregoing observations about politics in an office. A good many temperate, open-minded patients may welcome discussing political issues, either in the office or in their home, when time permits. A physician may be able to influence them or they him. If restraint is exercised by a physician, and he knows his patients can do the same, such discussions may be fruitful. Some of these patients may be opinion-shapers in the community. They may welcome a physician's views, particularly on political issues touching on medicine and health.

Nevertheless, in choosing up sides in 1960, and regardless of which party a physician elects to support, it's a good idea to remember a political campaign isn't a World Series. The scars of acrimonious debate at the personal level in politics may remain unhealed long after the pop-bottle throwing episodes of the ball game are forgotten.

It is doubtful whether there will be any post-election satisfaction in winning a political debate at the price of losing the good will of valued patients.

P.O. Drawer 307



Alameda County

Medical Institutions

Highland-Alameda County Hospital located in Oakland, California, is one of three Medical Institutions operated by Alameda County for the care of the indigent ill and injured of the County. The other two are Fairmont Hospital, located in San Leandro, and Arroyo del Valle Sanatorium located about five miles south of the city of Livermore. In addition, the county operates for outpatient departments, one each at Highland and Fairmont Hospitals and in the cities of Berkeley and Alameda, as well as two emergency hospitals, one at Highland and one at Fairmont.

Location

Alameda County is situated on the east side of San Francisco Bay directly across from San Francisco. The county is some 800 square miles in area and has a population of 900,000, the principal cities being Oakland, Berkeley and Alameda. The county enjoys an ideal climate, the summer temperature rarely exceeding 80°

and the winter temperature never below 35°.

Fairmont Hospital, the first of the County Medical Institutions, was founded in the year 1864 and for many years remained the only hospital serving the indigent ill of the county. Fairmont's plant is one of the most modern to be found anywhere, having been almost completely rebuilt since 1948.

Arroyo del Valle Sanatorium was built and opened in 1917 to provide care for childhood and adult tuberculosis.

Highland Hospital, the acute general hospital in the county system, was opened in September 1926 at which time Fairmont Hospital became the chronic, convalescent and rehabilitative unit in the county system. The bed capacity at Highland Hospital is 485 and 48 bassinets, at Fairmont 790 and at Arroyo del Valle 270, for a total of 1545 beds.

Alameda County, governed by an elected board of five supervisors, has an appointed county Institutions Commission consisting of 15 members (seven doctors and eight business-

Chronic,
Convalescent
and Rehabilitative
Unit.



men). The Commission acts in an advisory capacity to the board, as well as to the medical director and administrator of County Medical Institutions.

The attending staff of Alameda County Medical Institutions is composed of 430 members of the Alameda-Contra Costa Medical Association, who give freely of their time and talents on a voluntary basis.

Membership on the staff is through written application, approved by the chief of the service for which application is made. Appointment, by the Institutions Commission upon recommendation of the medical director, is for one year only and is renewed annually.

Chiefs and associate chiefs of service must be certified by their respective specialty boards; appointments are approved by the staff executive committee before going to the medical director and the Institutions Commission.

The chiefs of the departments of pathology, radiology and anesthesiology are full-time paid members of the staff, whereas, the others are strictly on a voluntary basis. The chief of the emergency surgery division is also a full-time, Board approved surgeon on salary, with two Board approved associates who are on call as needed. In addition, half-time paid clinical coordinators and instructors function in the departments of general surgery and pediatrics at Highland and in general medicine at Highland and Fairmont Hospitals.

In addition to its resident and intern programs, Highland Hospital has a fully

accredited school of nursing which offers two types of curricula, a three-year program leading to a diploma in nursing and a collegiate five-year course given in conjunction with Mills College, leading to a diploma from Highland School of Nursing and a Bachelor of Science degree from the College. Highland Hospital is also approved by the American Dietetic Association for the training of 12 dietetic interns each year. Fairmont Hospital, in conjunction with the Hayward Public School System, conducts a twelve-month course which prepares the students for the State of California Licensed Vocational Nurse examination.

Since 1950 Highland Hospital has housed the Institute for Metabolic Research. Under the direction of Laurence W. Kinsell, M.D., the Institute develops controlled investigative procedures in patients with endocrine and metabolic disease, and offers stimulation and supervision of investigation by members of the house staff.

Several fellowships in the Institute are available for the purpose of providing training in the clinical and investigative aspects of endocrine and metabolic disease. One year of such training may be credited toward certification by the American Board of Internal Medicine or the American Board of Pediatrics. The Institute is supported partly by the county and in part from outside sources. Four beds in a separate 7500 square foot area of the Hospital is given over exclusively to the Institute's activities.

HIGHLAND-ALAMEDA COUNTY HOSPITAL CONFERENCE SCHEDULE

MONDAY

Obstetrics & Gynecology Luncheon
Pediatric Rounds
Surgery Grand Rounds
Tumor Board
Orthopedic Seminar
Pre-Operative Conference
X-Ray Conference

TUESDAY

Pediatric Rounds
Chest Conference
Obstetrics Seminar
Anesthesia Dinner (3rd)
Pre-Operative Conference
Medical X-ray Conference
Dermatology Ward Rounds

WEDNESDAY

Alcoholic Rehabilitation Case Conference
Anesthesia Lecture (Basic Science & Clinical)
Medical-Surgery Luncheon (3rd)
Orthopedic Rounds
Urology Conference
Pre-Operative Conference
Chief's Rounds—Medicine
Metabolic Conference
Neurology Rounds
Medical Psychosomatic Conference (1st)

THURSDAY

Oral Surgical Luncheon (2nd)
X-Ray Conference
Pediatric Rounds
Psychosomatic Conference
Cardiac Rounds
Dermatology Dinner (4th)
Urology X-Ray Conference
Pre-Operative Conference
Pediatric-Psychiatry Conference
Chief's Rounds—Medicine

FRIDAY

Anesthesia Seminar
Pediatric Rounds
Psychiatry Luncheon (2nd)
Medical Grand Rounds
Pre-Operative Conference
C.P.C. (1st & 3rd)
Medical Journal Club (2nd & 4th)

SATURDAY

Medical Death Rounds
Orthopedic Rounds
Medical Chief Resident's Rounds
Gynecology-Pathology Conference

AT INTERVALS

Surgical-Pathology Conference
G.U.-Pathology Conference
Orthopedic-Pathology Conference

The department of physical medicine and rehabilitation carries on its activities at Fairmont Hospital in conjunction with a regional poliomyelitis and rehabilitation center supported by the National Foundation and operated in affiliation with the Stanford University School of Medicine.

The National Foundation supplies all respiratory and most technical equipment used on the poliomyelitis service; there are also research grants supporting special investigation at the biochemical and physiological research laboratory of the center.

A recent allocation of Federal funds through the Wolverton Act has aided plans for a 50 bed separate unit with equipment and facilities which will better enable Fairmont Hospital to carry out a presently existing rehabilitation

program on patients who are particularly good candidates for such procedures. This unit, to cost in excess of \$1 million, will be completed within the next 30 months.

As a result of an agreement made many years ago between the County and the Alameda-Contra Costa Medical Association, Highland Hospital houses and staffs the association library. Located on the second floor of the new, \$2 million outpatient and emergency department which was opened two years ago, the library consists of more than 16,000 volumes and some 300 monthly periodicals.

The Library, presided over by a full-time librarian and an assistant, is available to members of the house staff at the regular hours as well as evenings and over weekends.

In the same building is located a 12 treatment



Interns' Quarters, Fairmont Hospital Unit,
Alameda County Medical Institutions.



Proper emergency care is an important part
of the intern's training.

House staff rounds with Kenelm W. Benson,
M.D., chief of medicine and Joseph Picchi,
M.D., clinical coordinator.



Physician-nurse working area in out-
patient department. Patient enters
treatment cubicle directly from
dressing room, does not traverse
the physician-nurse area.



Staff doctor in outpatient clinic has
opportunity to learn care of am-
bulatory patients.

Resident's lounge and snack kitchen.



FAIRMONT HOSPITAL CONFERENCE SCHEDULE

Monday	Journal Club
Monday	Chest Problem Conference
Tuesday	Rehabilitation Conference
Wednesday	EKG Conference
Wednesday	Internal Medicine Conference—Luncheon
Thursday	Meeting with Visiting Orthopedic Staff & Luncheon
1st & 3rd Tuesday	CPC
1st & 3rd Thursday	Pathology Conference
1st & 3rd Friday	Psychiatric Conference
2nd & 4th Thursday	Medical X-ray Conference

table, 21 bed emergency hospital, and a modern outpatient department. Adjacent to and connecting with the new building is a 746 seat auditorium for lectures, demonstrations, staff meetings and various symposia which are held throughout the year. The county medical association uses the auditorium for its monthly meetings to which members of the house staff are invited.

Recreation

Public tennis courts and golf courses are easily accessible in the county area. Ping-pong, television and card games can be enjoyed in the house staff quarters. San Francisco with its cosmopolitan reputation and atmosphere offers many cultural advantages in the symphony, the opera and the theater. The close proximity of Berkeley with the huge University of California provides intercollegiate spectator sports of a wide variety. Skiing devotees have unexcelled facilities within a four to four and one-half hour drive by automobile.

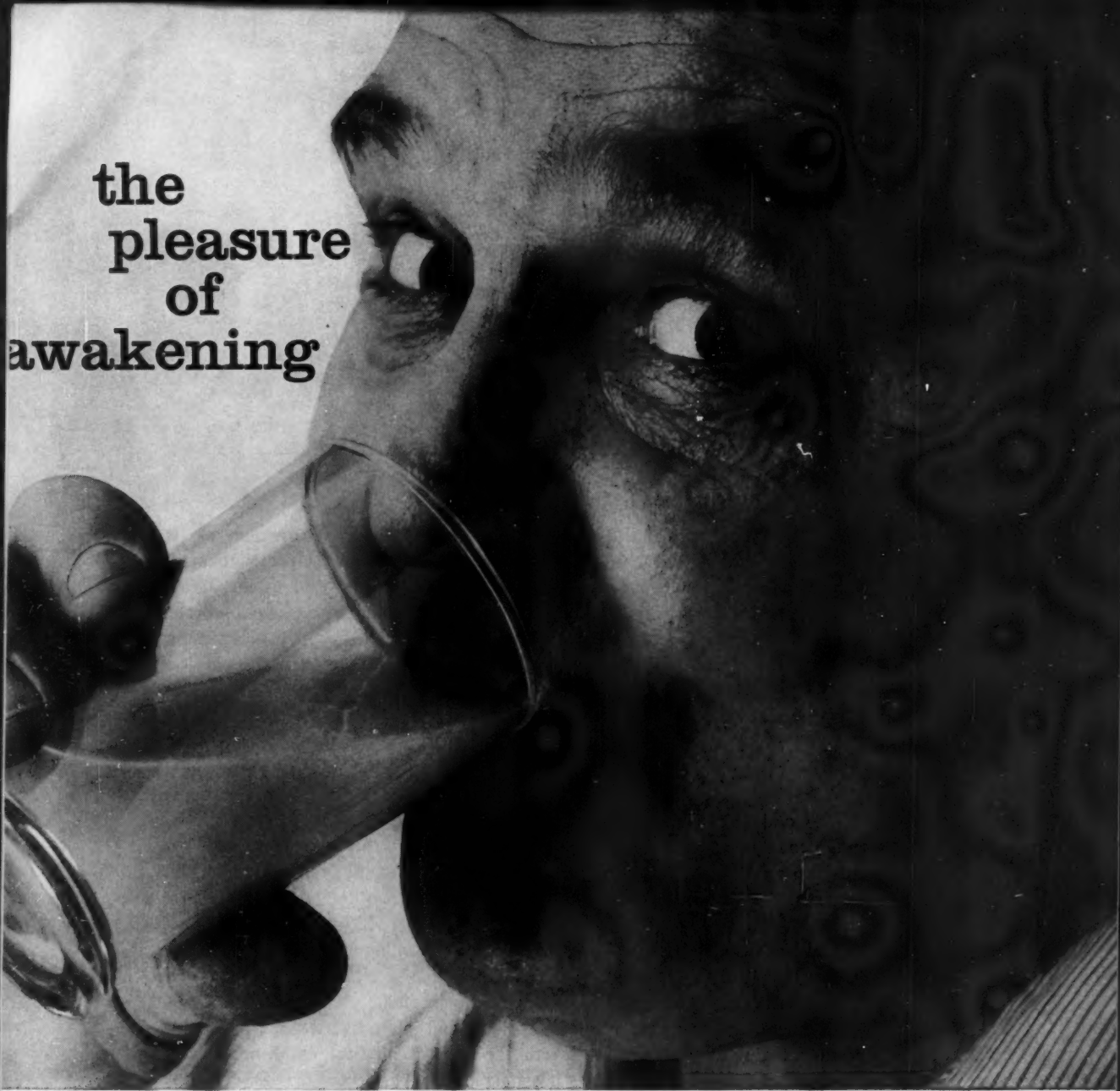
Each year and active Wives Club of the house staff arranges several parties, particularly at Hallowe'en, Christmas and in the spring. The annual house staff-visiting staff barbecue, held as a get-acquainted session at Fairmont Hospital in September, is a popular event as is the graduation banquet held the last week in June.

Quarters

In June of each year the executive housekeeper has a list of available living accommodations in the community and will provide every assistance in finding suitable housing for members of the house staff. Interns and residents list the accommodations they have been occupying with the housekeeping office; members of the Wives Club are of great assistance to incoming appointees.

Resident and intern quarters are in keeping with the general physical excellence of the hospital plants and have been the basis for many compliments from house staff.





the
pleasure
of
awakening

Free of barbiturate "hangover" after a night of deep, refreshing sleep... this is the promise of Noludar 300. One capsule at bedtime lulls your patient into undisturbed sleep for as long as 6 or 8 hours... without risk of habituation, without toxicity or side effects. Try Noludar 300 for your next patient with a sleep problem. One capsule at bedtime. Chances are he'll tell you

"I slept like a log"

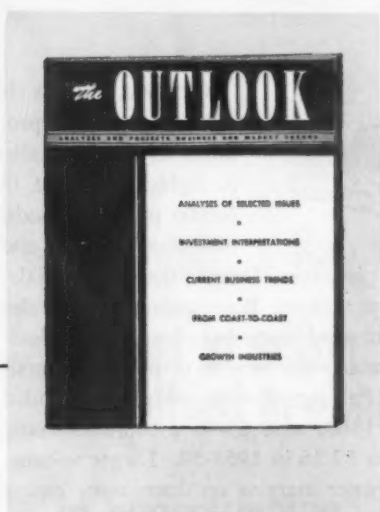
NOLUDAR 300

brand of methyprylon

300-mg capsules



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BY SPECIAL ARRANGEMENT

STANDARD & POOR'S

The world's foremost investment advisory service, analyzes and projects business and market trends for Medical Times readers.

TEN HIGH-YIELDING DEFENSIVE STOCKS

A Desirable Form of Investment Under Unsettled Market Conditions—Sample Portfolio Would Provide Above-Average 4.4% Yield

Defensive stocks are an especially good medium during the remaining period of general market unsettlement and are an excellent investment, almost regardless of timing, for retired persons and others requiring a steady secure source of income.

Although the term "defensive" implies that companies in this category are relatively immune to adverse business trends, it does not mean that growth qualities are lacking. On the contrary, growth usually is about in line with the economy as a whole, but without the sharp fluctuations characteristic of more cyclical lines. Another factor favoring defensive stocks at this time is the shift toward an easier credit policy, to which such issues are more responsive than the general run of stocks.

As a rule, high-grade bonds still yield more than common stocks. This relationship, which is counter to the usual experience, has now existed for two years, but the spread has narrowed in 1960 as the bond market has recovered and the stock market has softened. Notwithstanding the yield advantage still prevailing, many investors are not partial to bonds, preferring instead the inflation-hedge qualities of selected common stocks, as well as the participation they offer in long-range economic growth.

A PORTFOLIO YIELDING APPROXIMATELY 4.4%

	AUG. 24 APPROX. COST*	ANNUAL INCOME	YIELD %
15 American Tobacco.	\$935	\$42.00	4.5
15 Boston Edison	965	45.00	4.7
35 Consolidated Cigar.	1120	43.75	3.9
30 Equitable Gas	1205	55.50	4.6
40 General Mills	1220	48.00	4.0
20 Pacific Lighting . . .	1015	48.00	4.7
20 Penick & Ford	1010	44.00	4.4
25 Phila. Natl. Bank . .	1100	50.00	4.5
50 Seaboard Finance . .	1200	50.00	4.2
30 Union Electric . . .	1185	54.00	4.6
	\$10,955	\$480.25	4.4%

*Because of the time-lag created by the mechanics of magazine publishing, investors should consult daily papers for latest prices.

The ten stocks analyzed herewith have been selected not only for their defensive qualities but also for their attractive yields. The suggested portfolio would provide an approximate return of 4.39% (based on August 24 prices). These issues are well suited for accounts where a liberal and reasonably assured return is a prime investment consideration.

AMERICAN TOBACCO, the second largest cigarette producer, is estimated to account for slightly over one-quarter of total U.S. cigarette

sales and perhaps 75% of the non-filter king-size market. Leading brands include Pall Mall, Lucky Strike, Dual Filter Tareyton, Herbert Tareyton, Hit Parade, and Riviera, a king-size mentholated brand introduced in late 1959 in a number of test markets. Earnings in the current year could approximate \$4.75 a share, up from \$4.61 a share in 1959, adjusted for the 2-for-1 stock split last May. Quarterly dividends of \$0.57½ probably will be supplemented either with an extra in line with the \$0.50 a share (adjusted) paid annually since 1956 or by a boost in the quarterly rate to eliminate the extra. *The shares are reasonably priced relative to earnings and dividends and have appeal for defensive purposes.*

BOSTON EDISON—Deriving some 70% of electric revenues from residential and commercial customers and only about 15% from industrial business, operations of this utility generally are relatively stable. Aided by rate increases, earnings in the past two years showed good improvement and were at a record high of \$3.69 a share in 1959. A further rise to around \$3.95 a share is projected for 1960. Dividends, paid in each year since 1890, are expected to continue at the current rate of \$0.75 quarterly. *This high-grade stock is recommended for the conservative investor interested in secure income and possibilities for moderate capital gains over a period of time.*

CONSOLIDATED CIGAR, producer of such well-known brands Dutch Masters, El Producto, Muriel, Harvester, and La Palina, ranks as the nation's largest cigar manufacturer. Despite increases in state levies on tobacco, which pared the profits showing in the 1959 final quarter and restricted the improvement in net in the forepart of this year, profits for all of 1960 could approach \$3 a share, compared with \$2.74 and \$2.54, respectively, in 1959 and 1958. Dividends of \$0.25 quarterly are expected to be supplemented with either a year-end cash extra approximating the \$0.25 of December, 1959, or a small extra in stock in line with the 5% payments made in 1956, 1955 and 1954. *The shares are an attractive low-priced defensive commitment.*



GENERAL MILLS is not only the largest producer of flour but also is highly important in certain packaged foods, including cereals and cake and pie mixes. Despite the long-term decline in per capita flour consumption, sales for a number of years have increased, reflecting particularly the benefits of product diversification. Earnings for the fiscal year ended May 31, 1960, were \$1.46 a common share, down from \$2.26 in 1958-59. Larger volume, possibly better margins on flour, some easing of the extremely competitive conditions in the cake mix field which contributed to last year's earnings decline, and operating economies, particularly from the new Buffalo flour mill, suggest improvement in profits this year. Dividends of \$0.30 quarterly appear secure. *Although earnings have been prone to sag occasionally, as in 1959-60, operations have been consistently profitable, and the common stock is a good investment for the long pull.*

EQUITABLE GAS distributes natural gas in Pittsburgh and over 200 other communities in western Pennsylvania and adjacent West Virginia. It produces about 34% of its gas needs from owned Appalachian wells, and produces ethane concentrates as a basic raw material feed stock for Union Carbide. Earnings for 1960 are estimated at about \$2.70 a common share, up from \$2.54 the year before. The longer-term prospects are basically favorable, auguring well for periodic dividend increases. The rate was recently raised to \$0.46¼ quarterly from \$0.43¾. *The shares have appeal for income and gradual capital gains.*

PACIFIC LIGHTING—The population growth of Los Angeles and most of southern California served by this natural gas distributing system is far outpacing the country as a whole. Also, the Los Angeles area has considerable diversified manufacturing and is rapidly becoming a production and research center for the dynamic electronics industry.

To meet an anticipated load growth of 100,000 new customers a year and to provide

**New
Hygroton®**

brand of chlorthalidone

Geigy

**longest in action...
smoothest in effect**

**in hypertension
and edema**

greater loss of sodium
lesser loss of potassium

A new antihypertensive-saluretic,
Hygroton, now enables still more effective
control of hypertension and edema.

more evenly sustained therapeutic response

Because it is more prolonged in action
than any other diuretic,¹ Hygroton affords
a smoother, more evenly sustained
response.

more nearly pure natriuretic effect

Hygroton produces only minimal
potassium loss . . . affords a better sodium-
potassium ratio than other saluretics.³

more liberal diet for the patient

As a rule, with Hygroton, restriction of
dietary salt is unnecessary.

more convenience and economy

For maintenance therapy three doses per
week suffice to manage the vast majority
of cases.²

in arterial hypertension

Sustained control without side reactions.

in edematous states

Copious diuresis without electrolyte
imbalance.

Hygroton®, brand of chlorthalidone: White,
single-scored tablets of 100 mg. in bottles of 100.

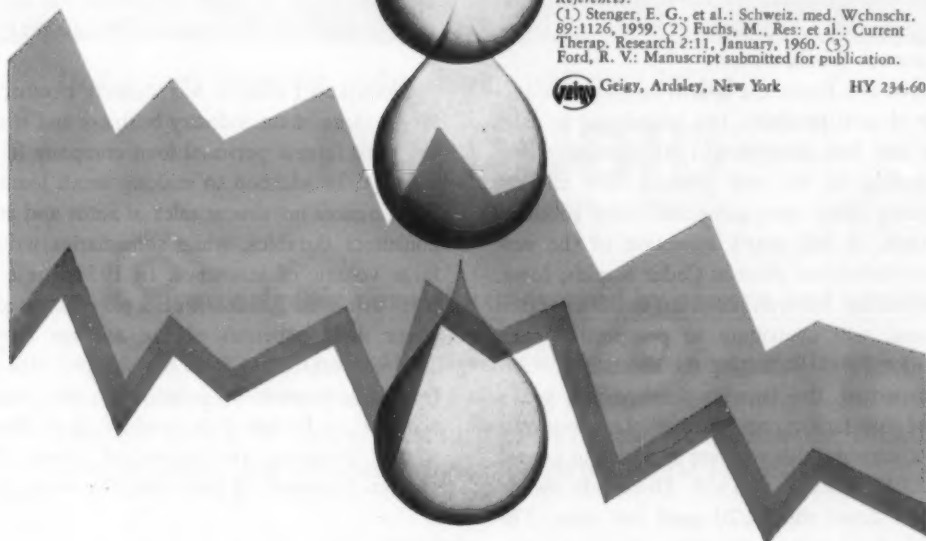
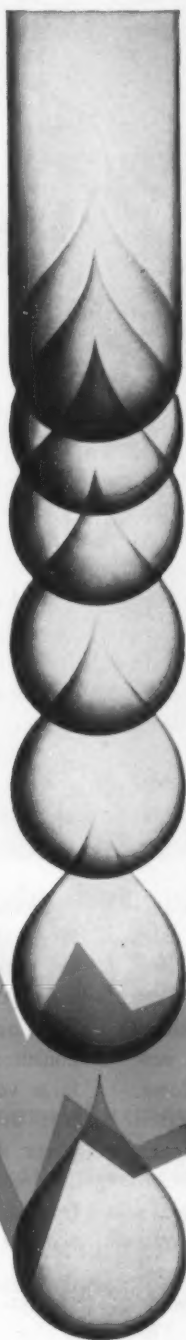
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89:1126, 1959. (2) Fuchs, M., Res: et al.: *Current*
Therap. Research 2:11, January, 1960. (3)
Ford, R. V.: Manuscript submitted for publication.



Geigy, Ardsley, New York

HY 234-60



STATISTICAL BACKGROUND OF SELECTED ISSUES

	EARNINGS \$ PER SHARE			PAID SINCE	DIVIDENDS \$			1960 PRICE RANGE	AUG. 24 APPROX. PRICE ¹	YIELD %
	1958	1959	E1960		1958	1959	INDICATED RATE			
AMERICAN TOBACCO...	4.28	4.61	4.75	1905	2.50	2.50	‡2.80	62½-51½	62½	4.5
BOSTON EDISON	3.55	3.69	3.95	1890	2.80	2.85	3.00	65¼-59%	64½	4.7
CONSOLIDATED CIGAR	2.54	2.74	3.00	1938	1.00	1.17½	‡1.25	32½-23	32	3.9
EQUITABLE GAS	2.34	2.54	2.70	1950	1.63¾	1.75	1.85	40¼-32¾	40¼	4.6
GENERAL MILLS	1.98	2.26	1.46	1898	1.00	1.15	1.20	31 -23%	30½	4.0
PACIFIC LIGHTING	2.73	2.64	3.15	1909	2.20	2.40	2.40	51¾-46%	50%	4.7
PENICK & FORD	3.44	3.18	3.35	1929	2.00	2.20	2.20	52¾-44	50½	4.4
\$PHILA. NATL. BANK ...	2.91	3.17	3.65	1844	1.90	1.90	2.00	44 -41%	44	4.5
SEABOARD FINANCE ...	1.41	1.47	1.50	1935	1.00	1.00	1.00	24½-20½	24	4.2
UNION ELECTRIC	1.77	1.84	2.25	1933	1.52	1.58	1.80	39¾-32	39%	4.6

¹All issues listed on the New York Stock Exchange unless otherwise noted. §Over-the-counter. †Includes extra. ‡Plus stock. E—Estimated. ²Years ended May 31. ³Years ended Sept 30. ⁴Because of the time-lag created by the mechanics of magazine publishing, investors should consult daily papers for latest prices.

for the increasing utilization of natural gas to combat the effect of smog from other fuels, the company has under way and projected a large-scale expansion program and has arranged for additional gas supplies. Earnings for 1960 are expected to climb to around \$3.15 a common share from \$2.64 in 1959, when an abnormally mild winter reduced the consumption of gas for heating. Dividends of \$0.60 quarterly are the minimum expectation. *This stock is a sound commitment for assured income and for capital gains stemming from*

the growth potentialities.

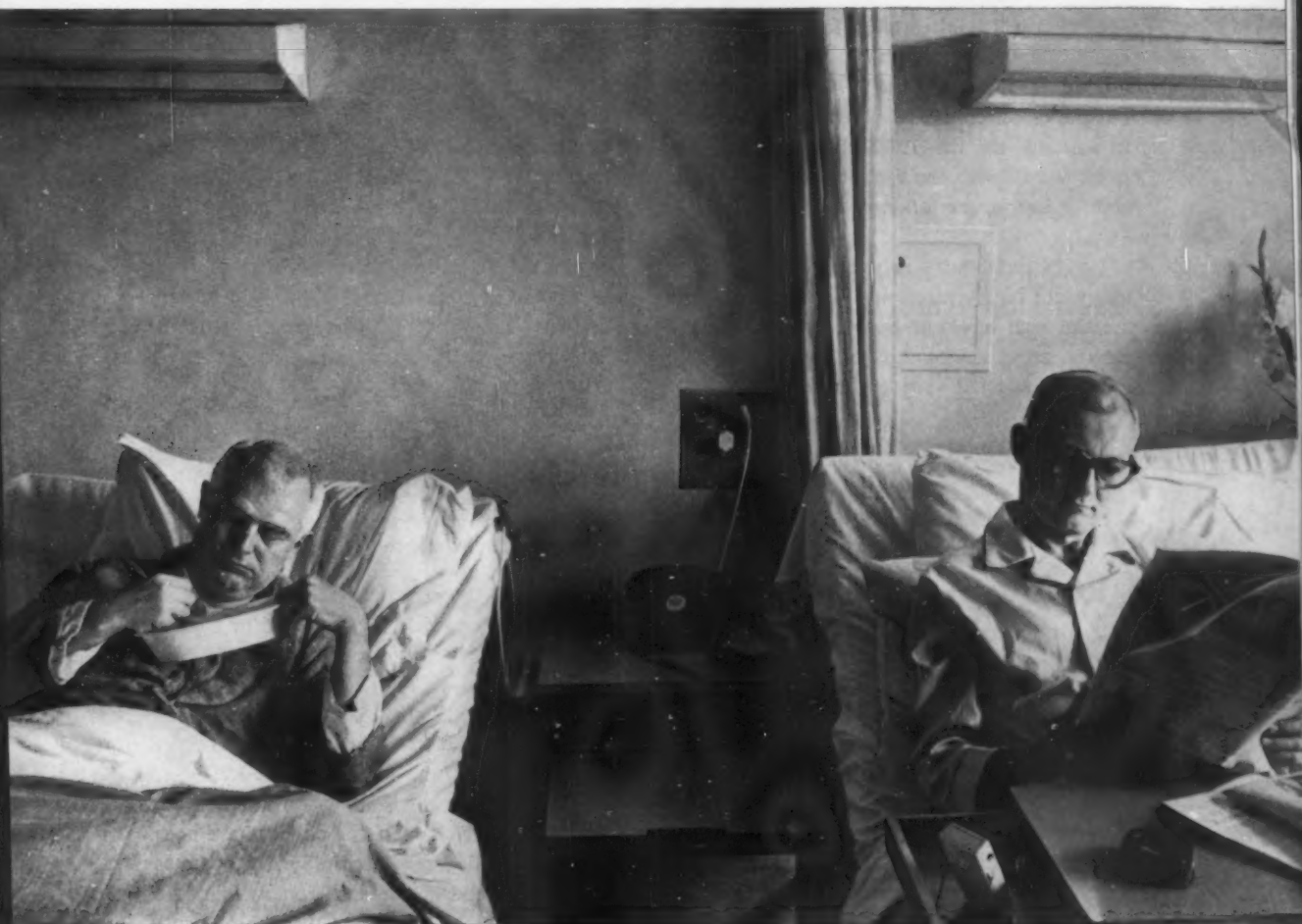
PENICK & FORD, the fourth largest manufacturer of corn products, has broadened its sales base and has strengthened its earning power by adding to its own product line and by acquiring other companies and other products for cash. A full year's operation of the new starch derivatives plant at Cedar Rapids, Iowa, by enabling the company to meet increased demand, will contribute to prospective sales gains for 1960. Reflecting the absence of start-up expenses, the benefits from a full year's use of that facility, and further plant improvements, earnings this year are expected to exceed the \$3.18 a share of 1959. Dividends should at least equal the \$2.20 paid last year. *The shares are a sound commitment for current return and for long-term appreciation possibilities.*

PHILADELPHIA NATIONAL BANK has been branching out into the territory outside of Philadelphia where notable industrial development is taking place; besides 11 offices in Philadelphia, it now has 15 in the surrounding counties. Reflecting continued strong demand for credit, outstanding loans of the bank rose to a new high on June 30, up 15% from a year earlier, and indications are that loans will hold at a high level through the year. Net operating earnings of \$3.65 a share seem likely for 1960, up from \$3.17 in 1959. *The stock has appeal for income and its conservative qualities.*

SEABOARD FINANCE has steadily captured a larger share of the industry business and is now the third largest personal loan company in the country. In addition to making small loans, it also finances instalment sales of autos and other consumer durables, while subsidiaries write a large volume of insurance. In 1959, the company introduced a credit card plan designed to cover daily expenses of the average family. This operation was built up sharply with the recent agreement to take over the charge accounts of Barker Bros. and W. & J. Sloane stores, involving receivables of about \$30 million. Expenses of launching the credit card

The information set forth herein has been obtained from sources believed to be reliable, but its accuracy and completeness are not guaranteed.

a pair of postoperative patients:



both are free of pain—but only one is on

DILAUDID®

(Dihydromorphone HCl)

swift, sure analgesia normally unmarred by nausea and vomiting

Before and after surgery, DILAUDID provides unexcelled analgesia. Its high therapeutic ratio is commonly reflected by lack of nausea and vomiting — and marked freedom from other side-effects such as dizziness and somnolence. DILAUDID thus facilitates early ambulation and simplifies postoperative management.

▲ **by mouth** ● **by needle** ▲ **by rectum**

2 mg., 3 mg., and 4 mg.

May be habit forming—usual precautions should be observed as with other opiate analgesics.



KNOLL PHARMACEUTICAL COMPANY • ORANGE, NEW JERSEY

operation will hold earnings for the fiscal year ending September 30, 1960, to around \$1.50 a common share, against \$1.47 a year before, but the credit cards are expected to contribute to earnings for the 1960-61 fiscal year. *The stock is attractive for the good current income and for later appreciation possibilities.*

UNION ELECTRIC—Prospects for this electric utility are highly promising. Favorable factors are the high levels of business activity in the service area, new industrial loads, and rate increases effected during the second half of

last year. Management expects earnings for 1960 to rise to around \$2.25 a share from \$1.84 a year before. As to the longer term, the company's load forecasts indicate that electric sales in 1964 will be about 40% higher than in 1959. Dividends were recently increased to \$0.45 quarterly, from \$0.41, and another moderate boost is possible in 1961. A portion of payments is expected to continue nontaxable as income through at least 1961. The exemption last year was 49%. *This stock is attractive for income purposes, particularly to investors in the upper tax brackets.*

THE MECHANICS OF THE MONEY MARKET

An Outline of the Workings of the Banking System—How Authorities Can Ease or Tighten Credit—Trend Now Toward Relaxation



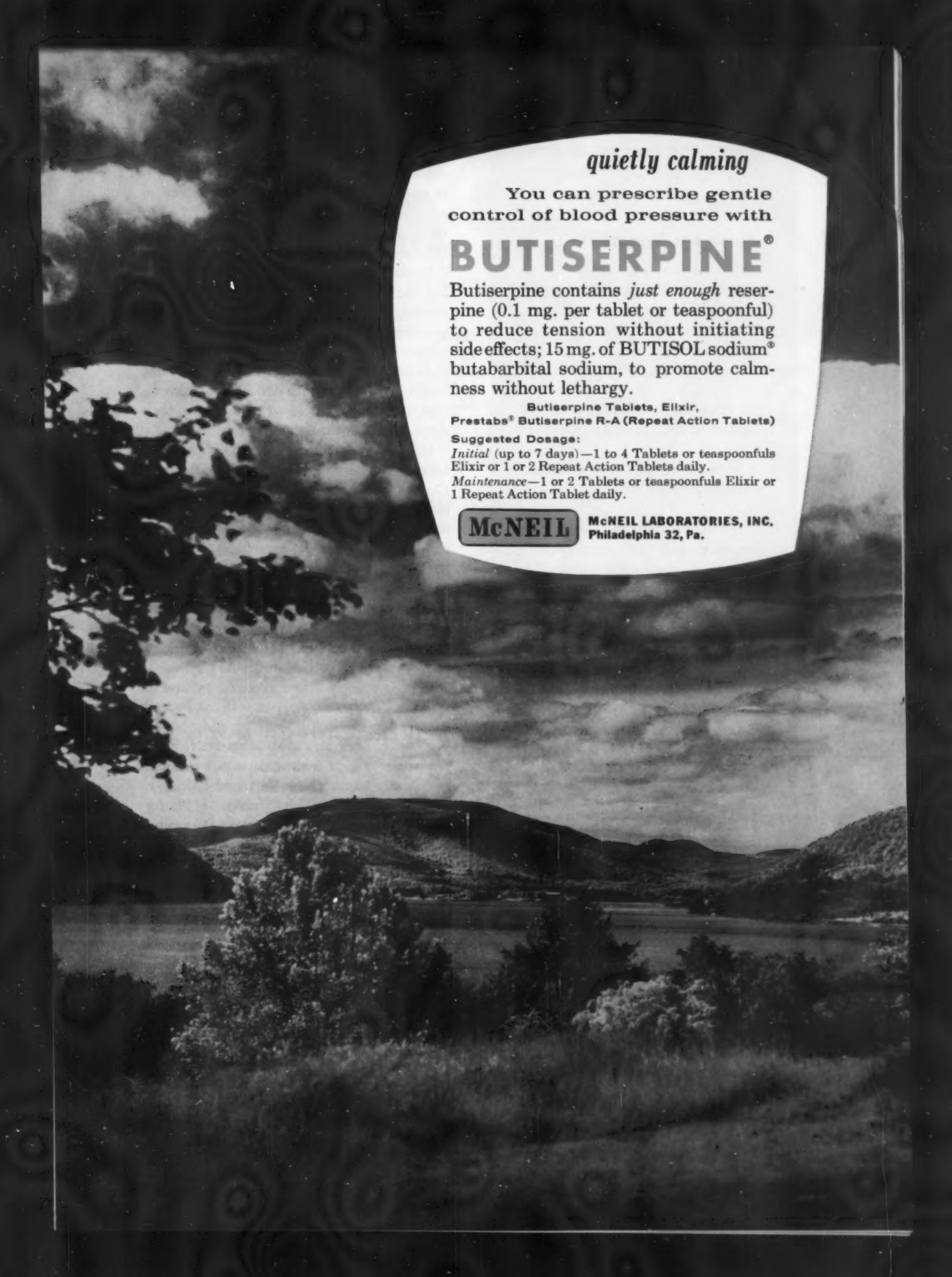
Credit policy has been in the spotlight recently as a result of the series of actions instituted by the Federal Reserve Board—all representing a departure from the tight money policy followed from late 1958 through the early part of 1960. Specifically, these steps embraced: (1) a reduction in the discount rate from 4% to 3½% as of June 3; (2) a lowering of margin requirements from 90% to 70% effective July 28; (3) authorization permitting member banks to count a larger portion of their vault cash as required reserves; (4) lowering of the reserve requirements, effective September 1, of central reserve city banks; and (5) a further cut in the discount rate to 3% as of August 12.

Actually, the first evidence that Federal Reserve was relaxing the reins on credit became apparent around March of this year. The policy then might have been termed "neutral," but the recent succession of moves is definitely in the direction of easier money. The repercussions could be widespread. As a result of this pressure, the prime loan rate has already

been cut by major banks, and other interest rates should follow. If accompanied by a more plentiful supply of funds and increased borrowing demand, this could provide a stimulus to the economy. There is also a collateral effect for the stock market, which should encounter less competition from bond yields.

● **Inflation Threat Waning**—Although the Democrats have charged that politics have been involved, the Federal Reserve System operates as an independent organization within the general structure of the Government, surrounded with safeguards against domination by any special interest group or political party. Its practice of "leaning against the wind" has been instrumental in warding off boom-and-bust phases in the economy. This flexible policy has involved the imposition of restraints when inflationary trends have predominated and the liberalization of credit when deflation has threatened.

By its shift in policy, the Fed has indicated its belief that inflationary pressures have subsided and that, with business leveling off and unemployment in excess of 5% of the labor force, the economy can safely stand a partial relaxation of restrictions and some growth in the money supply. It also has taken a calculated risk that higher interest rates abroad will not greatly accelerate the outflow of gold from the United States.



quietly calming

You can prescribe gentle
control of blood pressure with

BUTISERPINE®

Butiserpine contains *just enough* reserpine (0.1 mg. per tablet or teaspoonful) to reduce tension without initiating side effects; 15 mg. of BUTISOL sodium® butabarbital sodium, to promote calmness without lethargy.

Butiserpine Tablets, Elixir,
Prestabs® Butiserpine R-A (Repeat Action Tablets)

Suggested Dosage:

Initial (up to 7 days)—1 to 4 Tablets or teaspoonfuls Elixir or 1 or 2 Repeat Action Tablets daily.

Maintenance—1 or 2 Tablets or teaspoonfuls Elixir or 1 Repeat Action Tablet daily.

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GUIDE FOR INVESTORS

Based on recommendations of the Securities and Exchange Commission in cooperation with the New York Stock Exchange, American Stock Exchange, National Association of Securities Dealers and others.

1. Think before buying, guard against all high pressure sales.
2. Beware of promises of quick spectacular price rises.
3. Be sure you understand the risk of loss as well as prospect of gain.
4. Get the facts—do not buy on tips or rumors.
5. Give at least as much thought when purchasing securities as you would when acquiring any valuable property.
6. Be skeptical of securities offered on the telephone from any firm or salesman you do not know.
7. Request the person offering securities over the phone to mail you written information about the corporation, its operations, net profit, management, financial position and future prospects.

Since a new phase is under way, a simple outline of the operation of the money market is instructive for a proper understanding of other steps that might logically follow. That is the purpose of this study, for which there have been a number of requests from subscribers.

● Deposits the Starting Point — Deposits are the point of departure for an understanding of the money market. The process whereby deposits are expanded or contracted constitutes one of the most ingenious and important operations of the entire banking function, representing the device upon which we have traditionally relied to adjust the money supply to the changing needs of trade.

Deposits are created by the following transactions: (1) Loans made by commercial banks; (2) the purchase of securities by commercial banks; (3) the return flow of money in circulation; (4) the inflow of gold from abroad or the release of gold from earmark; (5) the disposal of gold newly mined in the United States; and (6) the purchase of Government securities by the Federal Reserve from other than commercial banks. Conversely, a movement in the opposite direction by any of the aforementioned items causes a reduction in deposits.

Commercial banks are required by law to maintain certain cash reserves with the Federal Reserve against the deposits on their books. The current reserves, known as reserve requirements, are 18% of demand deposits for central reserve city banks (New York and Chicago), 16½% for reserve city banks, 11% for country banks, and a uniform rate of 5% against time deposits. Effective September 1, 1960, the reserve requirements of central reserve city banks will be lowered to 17½% as the first step in a movement ordered by Congress to eliminate by July, 1962, the differential between these banks and reserve city banks.

In practice, except for a relatively small amount of vault cash used for current operations, commercial banks keep their funds on deposit with the Federal Reserve. Such deposits, plus a designated percentage of vault cash, are called member bank reserve balances; any surplus over the required reserves represents excess reserves. Commercial banks use their excess



a mustache is to wear on Halloween



dogs are to kiss people



a face is something to have on the front of your head



REDISOL is so kids have better appetites

Redisol (Cyanocobalamin, crystalline vitamin B₁₂) often stimulates children's appetites with consequent weight gain. Tiny **Redisol Tablets** (25, 50, 100, 250 mcg.) dissolve instantly in the mouth, on food or in liquids. Also available: cherry-flavored **Redisol Elixir** (5 mcg. per 5-cc. teaspoonful); **Redisol Injectable**, cyanocobalamin injection USP (30 and 100 mcg. per cc., 10-cc. vials and 1000 mcg. per cc. in 1, 5 and 10-cc. vials).

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MERCK SHARP & DOHME, DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

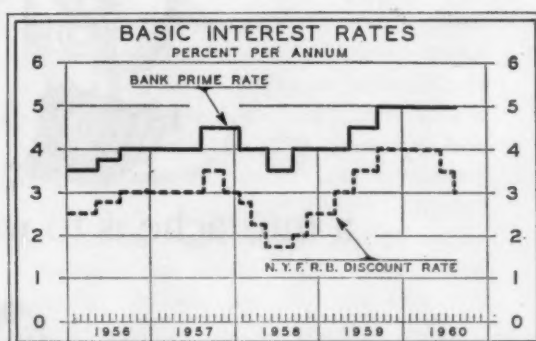
REDISOL IS A TRADEMARK OF MERCK & CO., INC.

reserves to make loans or to purchase investments. Free reserves are again being built up, as shown in the chart.

● **Reserve Balances the Key**—The reserve balances which the member banks have on deposit with the Fed are the heart of the money market. By bringing about changes in these balances and in the division thereof the Federal Reserve authorities are in a position to influence the activities of the member banks and money market conditions.

Commercial banks can replenish their reserves by borrowing from Federal Reserve Banks against Government securities or other acceptable collateral (known as discounting). The Fed can also influence reserve balances by buying or selling Government securities and acceptances in the open market.

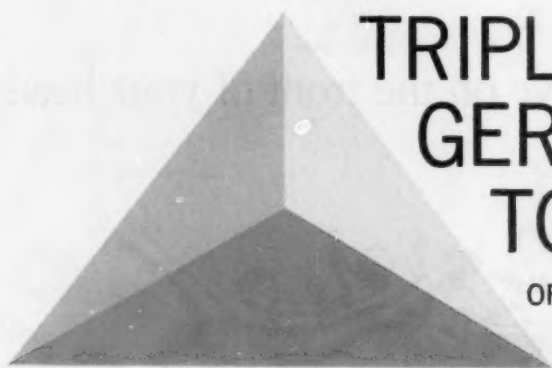
Actually, an individual bank can use its excess reserves only once; that is, it can buy securities and/or make loans only in an amount equivalent to its excess reserves. But on the basis of existing reserve requirements (assuming an average of 16%), the banking system as a



whole can utilize a given amount of excess reserves about six times over. Because each \$1 of excess reserves can support \$6 of deposits, these reserve dollars are sometimes called "high-powered money."

● **Sources of Reserve Balances**—There are only three important sources of reserve balances, as follows: (1) Gold, (2) return flow of money in circulation, and (3) "Federal Reserve Bank credit."

The Federal Reserve has no control over



TRIPLE-ACTION GERIATRIC TONIC

OFFSETS NUTRITIONAL DEFICIENCY
ENHANCES WELL-BEING
AIDS METABOLISM

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1 small capsule every morning

GEVRESTIN[®]

Geriatric Vitamins-Minerals-Hormones-d-Amphetamine Lederle

Each capsule contains: Ethinyl Estradiol 0.01 mg. • Methyl Testosterone 2.5 mg. • d-Amphetamine Sulfate 2.5 mg. • Vitamin A (Acetate) 5,000 U.S.P. Units • Vitamin D 500 U.S.P. Units • Vitamin B₁₂ with AUTRINIC[®] Intrinsic Factor Concentrate 1/15 U.S.P. Unit (Oral) • Thiamine Mononitrate (B₁) 5 mg. • Riboflavin (B₂) 5 mg. • Niacinamide 15 mg. • Pyridoxine HCl (B₆) 0.5 mg. • Calcium Pantothenate 5 mg. • Choline Bitartrate 25 mg. • Inositol 25 mg. • Ascorbic Acid (C) as Calcium Ascorbate 50 mg. • L-Lysine Monohydrochloride 25 mg. • Vitamin E (Tocopherol Acid Succinate) 10 int. Units • Rutin 12.5 mg. • Ferrous Fumarate (Elemental iron, 10 mg.) 30.4 mg. • Iodine (as KI) 0.1 mg. • Calcium (as CaHPO₄) 35 mg. • Phosphorus (as CaHPO₄) 27 mg. • Fluorine (as CaF₂) 0.1 mg. • Copper (as CuO) 1 mg. • Potassium (as K₂SO₄) 5 mg. • Manganese (as MnO₂) 1 mg. • Zinc (as ZnO) 0.5 mg. • Magnesium (MgO) 1 mg. • Boron (as Na₂B₄O₇·10H₂O) 0.1 mg. Bottles of 100, 1000.

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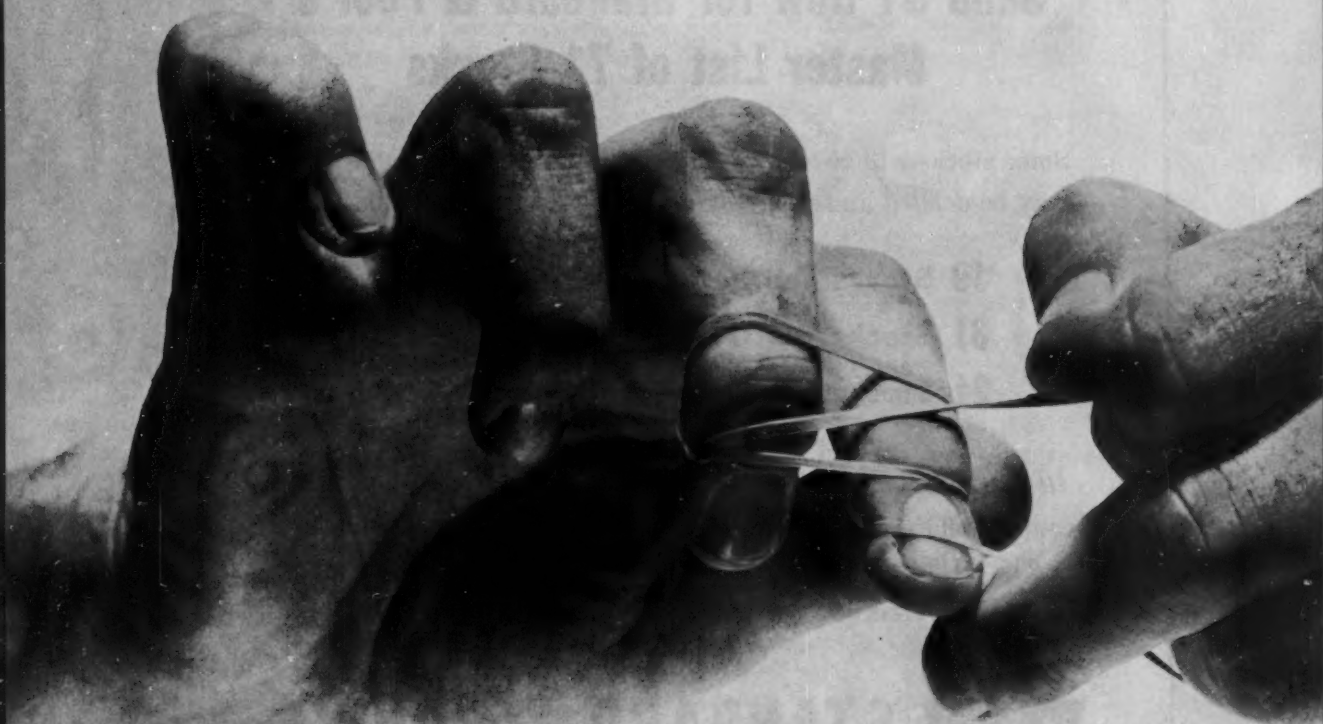
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anxiety and tension



The value of EQUANIL in relaxing mind and muscle has been amply demonstrated. Almost 1,000 published articles testify to its effectiveness.

EQUANIL is indicated for patients displaying mild to moderate emotional and physical difficulties, which are expressed as:

- simple anxiety
- a symptom complex accompanying medical disorders and surgical procedures
- muscle spasm, as in musculoskeletal disorders such as rheumatic conditions

EQUANIL does not produce extrapyramidal symptoms or ataxia. Drowsiness occurs but occasionally; allergic reactions are rare. Mental or physical acuity is not significantly affected.

Detailed Information on

EQUANIL®

Meprobamate, Wyeth

EQUANIL has been proved effective as a skeletal muscle relaxant and in the management of anxiety and tension occurring either alone or as an accompanying symptom complex to medical disorders. Although not a hypnotic, EQUANIL fosters normal sleep through both its antianxiety and muscle-relaxant properties.

EQUANIL is beneficial in relieving anxiety and emotional stress in the psychosomatic disorders—allergy, dermatoses, cardiovascular and hypertensive disease, gastrointestinal disorders, and tension headache.

Directions: Initial and usual adult dose of EQUANIL is 400 mg., given 3 or 4 times daily. This will usually be sufficient in the management of simple anxiety and tension or, adjunctively, in anxiety and tension complicating medical disorders and surgical procedures. Doses above 2400 mg. daily are not recommended, even though higher doses have been used by some investigators. Elderly patients usually tolerate EQUANIL well.

In children 3 years of age and older, the initial dosage is 100 to 200 mg. 2 or 3 times a day. Dosage may be increased as necessary, daily dosages of 2.4 Gm. being well tolerated by older children. Infants with cerebral palsy have been given EQUANIL from 3 months of age in daily doses of 125 to 400 mg.

Important: Careful supervision of dose and amount prescribed is advised, especially for patients with a known propensity for taking excessive quantities of drugs. Excessive and prolonged use in susceptible persons (alcoholics, former addicts, and other severe psychoneurotics) has been reported to result in dependence on the drug. Where excessive dosage has been continued for weeks or months, dosage should be reduced gradually rather than abruptly, since withdrawal of a "crutch" may precipitate withdrawal reactions of greater proportions than those for which the drug was originally prescribed. Abrupt discontinuance of doses in excess of the recommended dose has occasionally resulted in epileptiform seizures.

Precautions: Serious side effects have rarely been encountered following the administration of EQUANIL. Drowsiness may occur, particularly early in the course of EQUANIL therapy, but, as a rule, disappears as therapy is continued. Should drowsiness persist, it can usually be controlled by decreasing the dose; occasionally it may be desirable to administer central stimulants such as amphetamine or mephentermine sulfate (WYAMINE® Sulfate, Wyeth), concomitantly with EQUANIL.

The only serious side effects reported to attend use of meprobamate are rarely encountered allergic reactions. Such response is developed, as a rule, in patients who have had only 1 to 4 doses of meprobamate and have not had previous contact with the drug. Previous history of allergy does not appear to be related to the incidence of reactions.

Mild reactions are characterized by an itchy urticarial or erythematous, maculopapular rash, which may be generalized or confined to the groins. Acute nonthrombocytopenic purpura with cutaneous petechiae, ecchymoses, peripheral edema and fever have also been reported.

More severe cases, observed only very rarely, may also have fever, fainting spells, angioneurotic edema and bronchial spasms. Treatment consists of the administration of epinephrine, antihistamine and, possibly, hydrocortisone. EQUANIL should be stopped and reinstitution of therapy should not be attempted.

For further information on prescribing and administering EQUANIL, see descriptive literature, available on request.



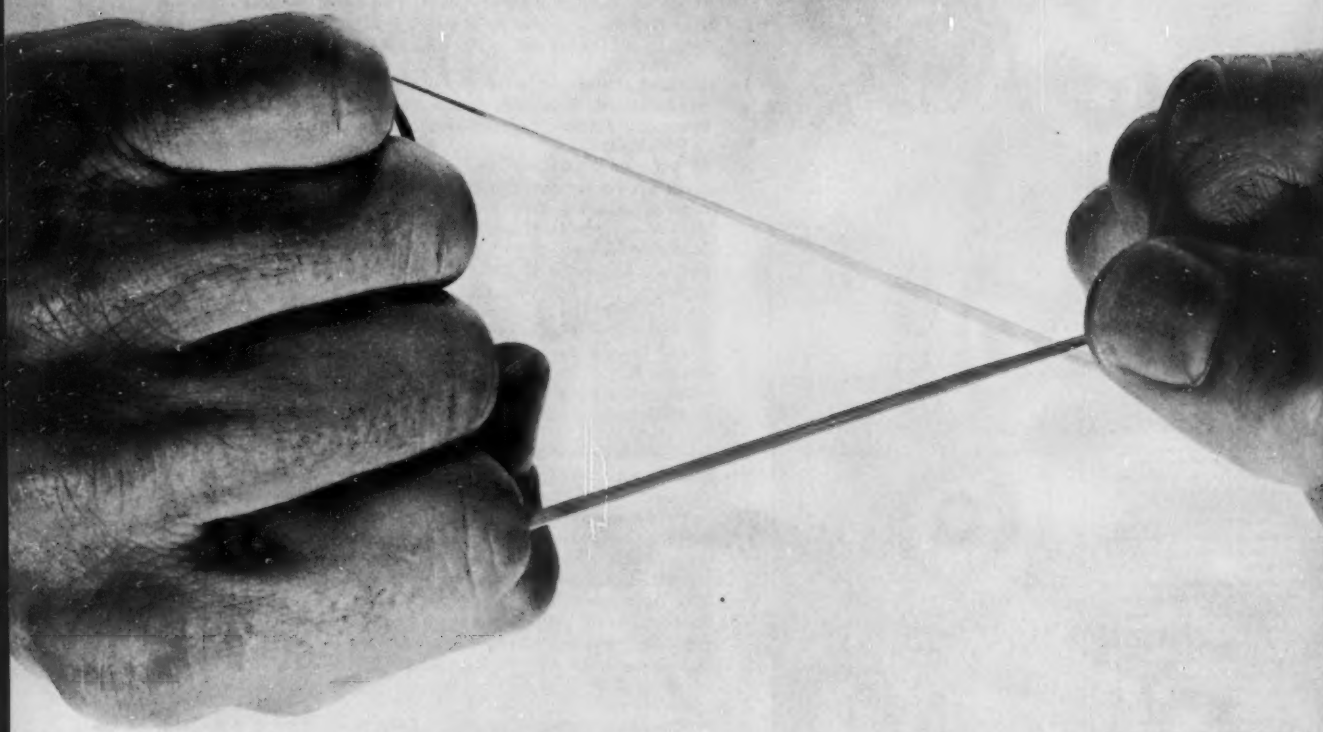
Equanil



A Century of Service to Medicine

Wyeth Laboratories Philadelphia 1, Pa.

midrange emotional problems



For the physician in everyday practice, PROZINE often aids the management of moderate to *moderately severe emotional problems resulting in anxiety expressed as:*

- somatic disorders such as headache, vertigo, nausea and vomiting, muscle spasm, insomnia
- secondary reactions to acute or chronic organic disease
- moderate to severe psychoneuroses
- abnormal behavior in children, adolescents, and agitated senile patients
- mild psychoses

PROZINE reduces motor excitability as well as apprehension, agitation, anxiety and tension.

PROZINE



Detailed Information on

PROZINE®

Meprobamate and Promazine Hydrochloride, Wyeth

PROZINE is indicated in the management of moderate to moderately severe emotional problems, resulting in anxiety, expressed as: *somatic disorders* (headache, vertigo, muscle spasm, insomnia, nausea and vomiting); *secondary reactions* to acute or chronic organic disease; *moderate to severe psychoneuroses*; *abnormal behavior* in children, adolescents, agitated senile patients; and *mild psychoses*. The dose required for the patient suffering midrange emotional problems is sufficiently low so that the incidence of side effects and toxicity reactions is minimal.

Directions: The usual dosage is 1 or 2 capsules, 3 or 4 times daily. For nighttime sedation, 2 capsules. If drowsiness is troublesome in the first 72 hours of treatment, a reduction of dosage to 1 capsule, 2 or 3 times a day may be indicated. Promazine enhances analgesics and central nervous system depressants, and such agents, when required, should be given in reduced doses.

Precautions: The incidence of agranulocytosis with promazine is less than 0.001%, and usually has been observed only in patients who have taken high doses of promazine for prolonged periods. However, symptoms of fever and sore throat should be reported and diagnosis confirmed by white blood cell count and differential smears. Intermittent hematological examinations should be made on all patients taking PROZINE for prolonged periods. Excessive and prolonged use of meprobamate in susceptible persons (alcoholics, former addicts, and other severe psychoneurotics) has been reported to result in dependence on the drug. In such cases, reduce dosage gradually to avoid withdrawal reactions and possible epileptiform seizures. Gross overdosage of PROZINE may result in hypotension. When a sympathomimetic agent is indicated, norepinephrine is recommended, since promazine reverses the effect of epinephrine. In cases of allergic reactions, PROZINE should be discontinued. It has been reported that patients may develop hepatic dysfunction when taking promazine if chlorpromazine had previously been given. This reaction may occur even though not evident during chlorpromazine therapy. Seizures, reported as occurring during promazine therapy, occur usually only with rapid large increases in dose to levels greater than 1 Gm. daily, or when the patient has a history of epilepsy inadequately controlled with anticonvulsant therapy.

Contraindications: Do not use PROZINE in comatose states caused by alcohol, barbiturates, opiates, etc., or when a drop in blood pressure is undesirable.

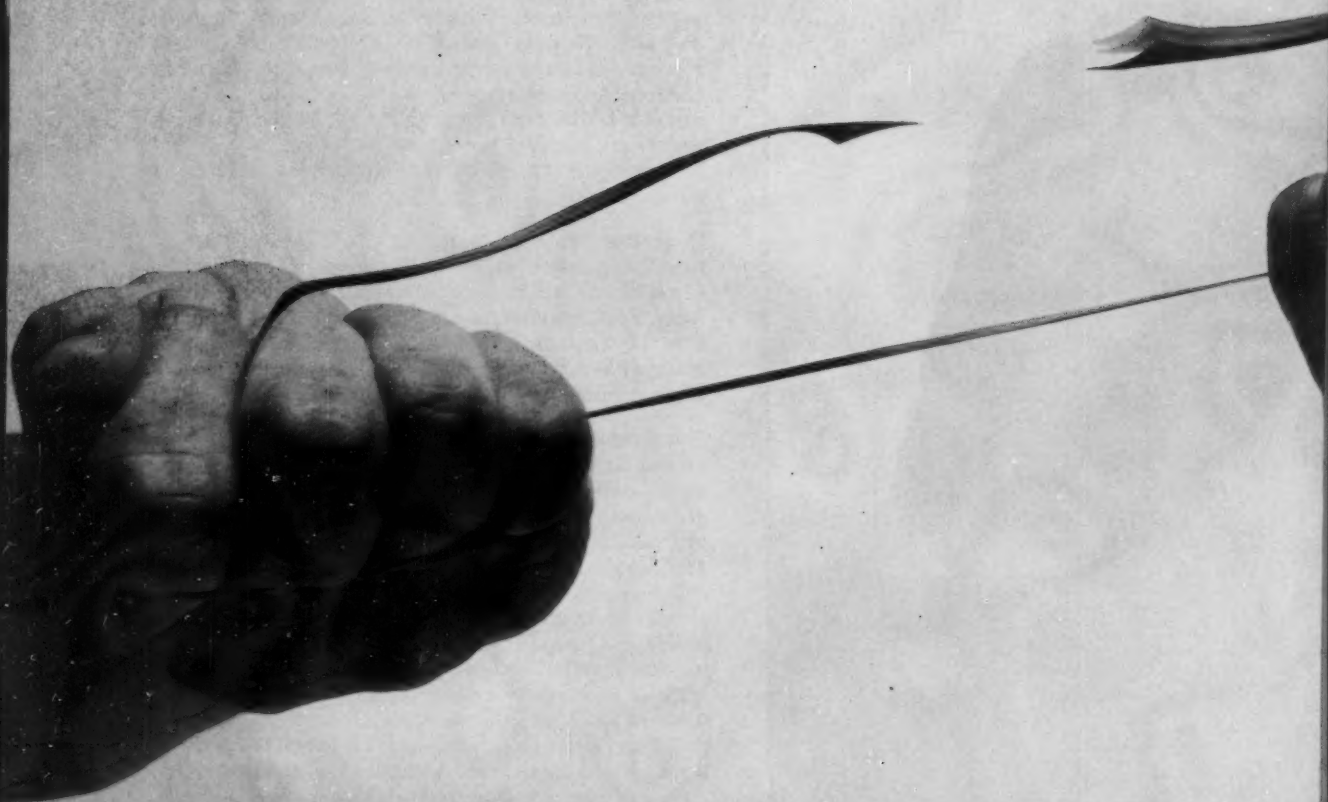
For further information on prescribing and administering PROZINE, see descriptive literature, available on request.



A Century of Service to Medicine

Wyeth Laboratories Philadelphia 1, Pa.

acute agitation



SPARINE quickly controls acute manifestations of severe mental and emotional disturbances; aids in maintenance thereafter. One of the most versatile agents at your disposal.

- controls central nervous system excitation, allays apprehension, calms agitation
- helps manage delirium tremens, acute hallucinosis, acute tremulousness and inebriation
- ameliorates withdrawal symptoms of drug addiction
- controls nausea and vomiting; useful in management of pain by enhancing analgesics
- facilitates diagnosis and therapy in medical emergencies by allaying severe agitation and apprehension

The most rapid control is obtained by the intramuscular or intravenous route; maintenance is usually by tablets or syrup.

INJECTION
TABLETS
SYRUP

Sparine

HYDROCHLORIDE



Detailed Information on

SPARINE®
HYDROCHLORIDE

Promazine Hydrochloride, Wyeth

SPARINE effectively controls central nervous system excitation, allays apprehension and anxiety, calms the agitated patient and is a useful adjunct to the management of mental and emotional disturbances. It is effective in the management of alcohol-induced syndromes (delirium tremens, acute hallucinosis, acute tremulousness, inebriation) as well as the withdrawal symptoms of drug addiction. Both acute and chronic psychiatric illnesses respond to SPARINE therapy. SPARINE has been found to be useful in the management of nausea and vomiting of either central nervous system or gastric reflex origin. SPARINE effectively facilitates the action of analgesics and central nervous system depressants. It has been used as an adjunct to surgical sedation, allaying apprehension and reducing the dosage requirements for narcotics, analgesics and sedatives. SPARINE may be used as an aid in diagnostic and therapeutic regimens. Such nonspecific symptoms as anxiety, pain, vomiting, nausea and hiccups frequently make more difficult both diagnosis and therapy of organic disease. SPARINE allays such symptoms without masking physical, neurological or laboratory findings.

Directions: For maximal therapeutic benefit the amount, route of administration and frequency of dose should be governed by the severity of the condition treated and the response of the patient. Oral administration should be used whenever possible; parenteral administration should be reserved for uncooperative patients or when nausea and vomiting interfere with oral administration. SPARINE when used intravenously should not exceed a concentration of 25 mg. per cc.; injection should be given slowly. Dilute 50 mg. per cc. concentration with equivalent volume of physiological saline before I.V. use. Avoid injection around or into the wall of the vein. Inject only into vessels previously undamaged by multiple injections or trauma.

In the management of acutely agitated patients, SPARINE should be given I.V. in initial doses of 50 to 150 mg. If the desired calming effect is not apparent within 5 to 10 minutes, additional doses up to a total of 300 mg. may be given. *(In the acutely inebriated patient, the initial dose should not exceed 50 mg.)* Once the desired effect is obtained, SPARINE may then be given I.M. or orally in maintenance doses of 10 to 200 mg. at four to six hour intervals. *In less severe disturbances,* initial oral therapy may be satisfactory. When tablet medication is unsuitable or refused, SPARINE Syrup may be used.

As an antiemetic, usual dose is 25 to 50 mg. repeated at four to six hour intervals. When oral route is not feasible, 50 mg. I.V. or I.M. will usually control the symptom, but oral medication should be initiated as soon as feasible. *In medical emergencies,* to allay apprehension and facilitate diagnosis or therapy, SPARINE should be given I.V., I.M. or orally in 50 to 200 mg. doses. See direction circular for details. *In the management of pain associated with malignancy or chronic disease,* SPARINE may be administered orally or I.M. in 25 to 50 mg. doses repeated at four to six hour intervals to allow for reduced dosage of analgesics.

Precautions: Although rare, drowsiness, dizziness and transitory postural hypotension may occur. If a vasopressor drug is indicated, norepinephrine is recommended, since SPARINE reverses the effect of epinephrine. Agranulocytosis has been reported in only 18 cases in about 8½ million patients. If, however, signs of cellular depression—sore throat, fever, malaise—become evident, discontinue SPARINE, check white blood cell count, and initiate antibiotic and other suitable therapy if indicated. Seizures, reported as occurring during SPARINE therapy, occur usually with rapid large increases in dose and at a daily dosage above 1 Gm. Caution must be exercised when administering SPARINE to patients with a history of epilepsy. There are reports in the literature indicating that patients may develop jaundice and/or liver dysfunction when taking promazine if they have previously taken chlorpromazine even though they did not show jaundice during chlorpromazine therapy. Avoid perivascular extravasation or intra-arterial injection, as severe chemical irritation or inflammatory response may result.

Because of its enhancing action on analgesics and central nervous system depressants, give them only in reduced dosage with SPARINE. Do not use in comatose states due to central nervous system depressants (alcohol, barbiturates, opiates, etc.). Use with caution in patients with cerebral arteriosclerosis, coronary heart disease, or other conditions where a drop in blood pressure may be undesirable. For further information on prescribing and administering SPARINE, see descriptive literature, available on request.

Wyeth Laboratories Philadelphia 1, Pa.



A Century of Service to Medicine

EFFECTS ON DEPOSITS AND RESERVES

AN INCREASE OF \$100 IN THE FOLLOWING ITEMS AFFECTS DEPOSITS AND RESERVE BALANCES AS SHOWN IN ADJOINING COLUMNS:

	DEPOSITS	RESERVE BALANCES		
		NET CHANGE	REQUIRED RESERVES	EXCESS RESERVES
Bank loans	+\$100	0	+\$16	— \$16
Bank investments	+\$100	0	+\$16	— \$16
Monetary gold stock	+\$100	+\$100	+\$16	+ \$84
Return flow of money in circulation	+\$100	+\$100	+\$16	+ \$84
Discounts with FR	0	+\$100	0	+\$100
FR open market purchases				
From commercial banks ..	0	+\$100	0	+\$100
From other than com. banks	+\$100	+\$100	+\$16	+ \$84
Treasury deposits with FR	—\$100	—\$100	—\$16	— \$84
Non-member deposits with member banks	² +\$100	² +\$100	² +\$16	² + \$84

¹Securities purchased from Treasury and non-commercial banking sources; securities purchased from other commercial banks merely involve a transfer within the banking system.

²Has opposite effect on banks which are non-members of the Federal Reserve System.

the first two factors. Transactions in gold depend on the preference of foreign countries for gold or for dollars. Likewise, changes in the volume of money in circulation are determined by the preference of people and business firms for currency or for bank accounts.

● Market Operations and Discounting—The “Federal Reserve Bank credit” source, however, contains faucets which the Fed can turn on or off at will, if necessary producing a flow or contraction of reserve dollars sufficient to counteract the effect of the other two forces.

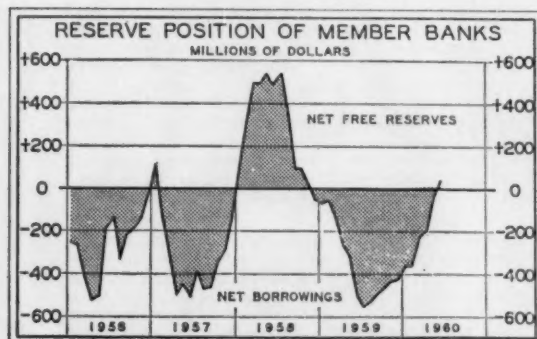
The first faucet represents open market operations. By buying or selling Government securities, the Federal Reserve increases or decreases the reserve balances of member banks.

The second consists of discounting Govern-

ment securities and other eligible paper at the Federal Reserve. This is a privilege extended to member banks, but the Fed can influence their activities by changes in the discount rate. By increasing the rate of interest charged on discounted paper, borrowing is made more expensive and thereby discouraged. Or the opposite effect can be achieved by lowering the rate.

Aside from the direct impact, changes in the discount rate have an important psychological effect, because they have become recognized in both banking and business circles as signals from the Federal Reserve as to what its credit policy will be. The succession of increases in the discount rate in 1958 and 1959 typified a policy of active restraint, whereas the current trend is in the opposite direction.

● Other Federal Reserve Powers—In addition, the Federal Reserve can raise or lower reserve requirements within the limits set by law. This action does not change the total reserve balances of member banks, but alters the division between required reserves and excess reserves. While this power is one of the most important instruments of credit control, it cannot easily be used to make delicate adjustments, and has been employed only rarely. The reduction effective September 1 for central reserve city banks will release about \$125 million of reserves.





e

EFFICIENT & ACCEPTABLE

PRONEMIA provides iron in a highly efficient and readily accepted form—as ferrous fumarate—for a heightened hematologic response per mg./dose and a lowered risk of gastrointestinal irritation. Formula and toleration assure full dosage **every day**...because patients rarely forget, or reject, the once-a-day regimen. PRONEMIA includes all needed hematinic factors with AUTRINIC® Intrinsic Factor Concentrate and Vitamin B₁₂.

Each PRONEMIA capsule contains:

Vitamin B₁₂ with AUTRINIC®
Intrinsic Factor Concentrate
2 U.S.P. Oral Units
Ferrous Fumarate 350 mg.
(Elemental Iron, 115 mg.)
Ascorbic Acid (C) 150 mg.
Folic Acid 2 mg.

Available on your prescription only

IN EASY 1-CAPSULE DAILY PRONEMIA®

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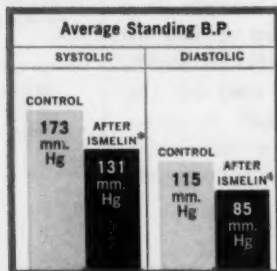
LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

ISMELIN® reduces high blood pressure to

According to reports from more than 100 clinical investigators, Ismelin—in moderate to severe hypertension—reduces blood pressure levels to normal or near-normal in a remarkably high percentage of patients. Following are summaries of typical findings:

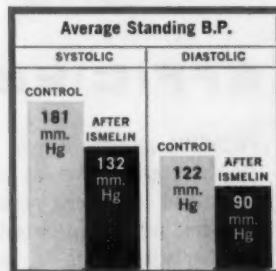
17 of 18 patients (94.4%) treated with Ismelin become normotensive in the erect position. Page and Dustan¹ gave Ismelin orally, alone or in combination with other antihypertensive drugs, to 18 patients daily for 2 to 10 weeks.

RESULTS: All 18 patients had reductions in standing blood pressure; 16 had moderate reductions in supine blood pressure as well. In 17 of the 18 cases, blood pressure levels became normal or near-normal in the erect position.



*During last week of treatment.

In 14 of 15 patients (93.3%) on Ismelin, blood pressure reduced to normal or near-normal levels in the standing position. Ismelin was administered orally by Frohlich and Freis² for 4 to 9 weeks to 15 male patients selected from the hypertensive clinic.

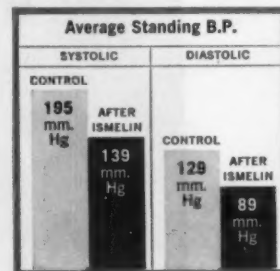


RESULTS: Ismelin evoked a potent antihypertensive response in the erect position: the blood pressure of 14 of the 15 patients dropped to normotensive or near-normotensive levels.

"The response [to Ismelin] was

characterized by a potent, orthostatic, antihypertensive effect similar to that seen with the ganglionic blocking drugs but without the side-effects of parasympathetic blockade."²

In 15 of 18 subjects (83.3%), guanethidine [Ismelin] reduced high blood pressure to near-normotensive levels. Guanethidine [Ismelin] was administered orally by Richardson and Wyso³ to 18 male hospitalized patients with hypertension.

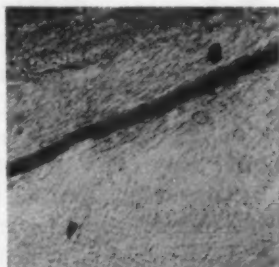


References: 1. Page, I. M., and Dustan, H. P.: J.A.M.A. 170:1265 (July 11) 1959. 2. Frohlich, E. D., and Freis, E. D.: M. Ann. District of Columbia 28:419 (Aug.) 1959. 3. Richardson, D. W., and Wyso, E. M.: Virginia M. Month. 86:377 (July) 1959. 4. Brest, A. N., and Moyer, J. H.: J.A.M.A. 172:1041 (March 5) 1960. 5. Page, I. H.: Postgrad. Med. 27:448 (April) 1960. 6. Kirkendall, W. M., Fitz, A. M., Van Hecke, D. C., Wilson, W. K., and Armstrong, M. L.: Paper presented at a Symposium on Guanethidine (Ismelin), The University of Tennessee College of Medicine, Memphis, Tenn., April 22, 1960. 7. Leishman, A. W. D., Matthews, H. L., and Smith, A. J.: Lancet 2:1044 (Dec. 12) 1959. **Additional References:** 8. Brest, A. N., Daurie, C., Glantz, G., and Moyer, J. H.: Current Therap. Res. 2:17 (Jan.) 1960. 9. Maxwell, R. A., Mull, R. P., and Plummer, A. J.: Experientia 15:267 (July 15) 1959. 10. Maxwell, R. A., Plummer, A. J., Schneider, F., Fovalski, H., and Daniel, A. L.: J. Pharmacol. & Exper. Therap. 128:22 (Jan.) 1960. 11. Maxwell, R. A., Plummer, A. J., Schneider, F., Fovalski, H., and Daniel, A. L.: Pharmacologist 1:68 (Fall) 1959. 12. Sheppard, H., and Zimmerman, J.: Pharmacologist 1:69 (Fall) 1959.

near-normal levels in 80 to 90% of cases^{1,3}

RESULTS: "All patients showed definite reduction in blood pressure coincident with administration of [Ismelin]. In most of the subjects [15] standing blood pressure could be maintained near normal levels."³

"Side-effects encountered... have indeed been minimal..."⁴ Brest and Moyer⁴ state: "Side-effects [of Ismelin] encountered to date have indeed been minimal, with mild diarrhea as the only significant complaint even when large daily doses (450 mg.) of the drug are administered. No evidence of toxic action of the drug has been encountered thus far." Page⁵ observes: "...Guanethidine [Ismelin] has the advantage [over ganglionic blockers] in that it is much easier to handle and does not produce nearly as much dose sensitivity. Too much of a ganglion-blocking agent will really 'clobber' the patient; with Guanethidine, there is much more leeway." Kirkendall and co-workers⁶ report: "Guanethidine has remarkably few side effects. The absence of symptoms of parasympathetic blockade makes its use better tolerated by most patients than conventional ganglion blocking therapy." Leishman and associates⁷ conclude: "The capacity of guanethidine to reduce the blood-pressure of hypertensive patients



Ismelin Increases Arteriole Caliber

Ismelin represents a new principle in the treatment of high blood pressure: It acts at the nerve-arteriole junction where it apparently opposes the release and/or distribution of the pressor substance, norepinephrine. Ismelin is not a ganglionic blocker.

◀ BEFORE ISMELIN: Photo shows normal arteriole in rat mesentery. (100x)

◀ AFTER ISMELIN: Ismelin has blocked the constricting influence of norepinephrine. Arteriolar caliber has significantly increased, while an adjacent capillary has filled. (100x)

Because it acts at the nerve-arteriole junction—with no demonstrable central or ganglion blocking effect—Ismelin produces a clear-cut antihypertensive response in a high percentage of cases.

without symptoms of parasympathetic blockade is consistent with a mechanism of selective sympathetic-nerve inhibition..."

For complete information on precautions, dosage, and side effects, write to Medical Service Division, CIBA, Summit, New Jersey.

Supplied: ISMELIN Tablets, 10 mg. (yellow, scored) and 25 mg. (white, scored); bottles of 100.

ISMELIN® sulfate (guanethidine sulfate CIBA)



The Federal Reserve also has the power to set margin requirements. Unlike the others, which apply to the money market as a whole (called quantitative measures), this control is qualitative in nature in that it applies to only one segment, the stock market.

● **Powers of the Treasury**—Besides the Federal Reserve, the term "monetary authorities" includes the Treasury, which exercises important control over the credit situation, particularly through its management of the huge public debt. Just as the deficit financing of the depression and the war period sharply increased the money supply, so the use of surplus Treasury receipts for debt retirement can produce the opposite effect.

There are other ways in which the Treasury has an influence. It can permit balances to accumulate in its accounts in the commercial banks or transfer these funds to its account in the Federal Reserve, thus easing or tightening the credit situation. The timing and terms of its security offerings can have an important bearing on the demand for funds and on the level of interest rates.

Moreover, purchases and sales for the account of the various Government trust funds can be important.

In practice, the Federal Reserve and the Treasury cooperate closely. The past record is replete with actions representing the use of powers by both agencies.

PRIVATE PLANE MAKERS PROSPER

Industry Growth Expected to Exceed That of Economy by Wide Margin—Market Undervaluing Potentials and Improved Fundamentals

The private plane stocks continue to offer some of the soundest values in the stock market today! This is a growth industry selling at a multiple of earnings that gives little recognition to the potentials. It seems reasonable to conclude that the market will have to appraise these issues more generously if their growth records continue.

The general aviation industry is divided principally among four companies: Beech, Cessna, Piper, and Rockwell-Standard. The investing public has been wary of this group because of four major factors: (1) Its extremely poor performance in the boom-and-bust period after World War II; (2) the fear that the large plane manufacturers would easily swallow up this market once it gets to sizable proportions; and (3) the belief that small planes are luxury items subject to wide swings based on the level of national income.

Growth Trend Now Established—The boom-and bust after World War II was artificially stimulated by: (1) the G.I. Bill; (2) the pent-up demand for planes since none were made during the war; and (3) the interest by war-time flyers. Whereas this boom period was based on pleasure flying, the current growth trend, which started after the Korean War, is

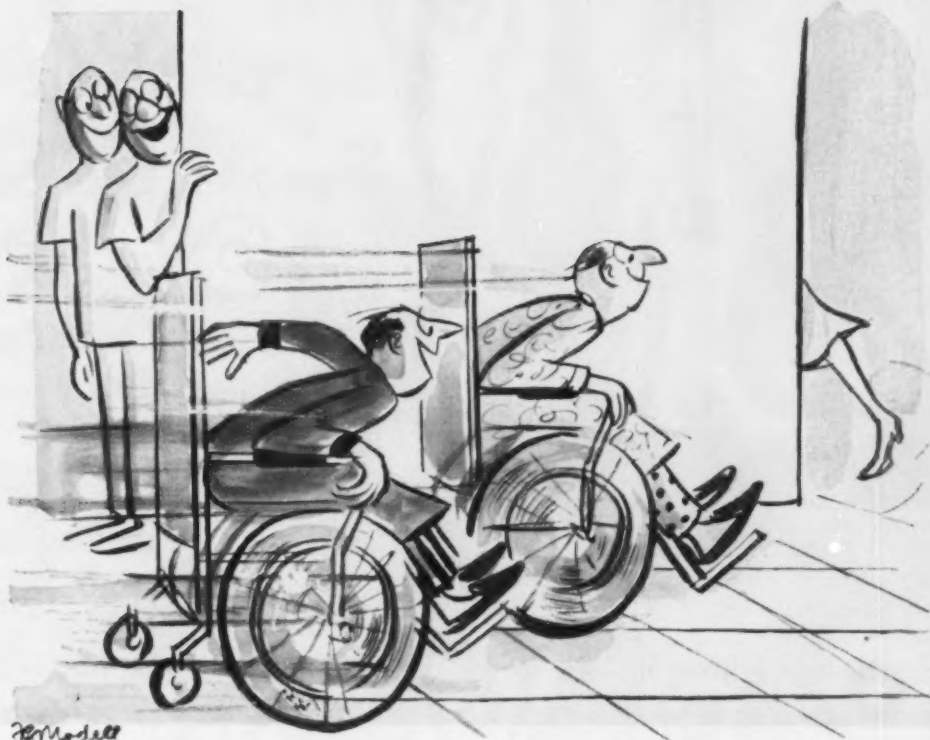
based largely on business flying, which involves cost savings and convenience.

Companies presently in the industry have a distinct competitive advantage over the large plane makers because of their established sales and service organizations and because of their wide line of new planes. It would take considerable time and many millions of dollars for a large newcomer to the industry to become competitive. This conclusion takes on even stronger force, year-by-year, as the number of models are increased and as the dealer forces are expanded.

The industry is not immune to changes in general business, but the excellent results in the 1954 and 1958 recession years effectively blunt the charge that the industry's fortunes are highly cyclical.

Since annual growth of the private plane industry should exceed that of the economy by several times and since valuations of these issues are moderate, we believe a strong case can be made for their purchase.

BEECH AIRCRAFT—Beech's product mix emphasizes the higher-priced private plane models and has been more heavily weighted toward military work than that of its competitors. Beech, consequently, has felt the impact of the



"All my convalescent patients get an extra lift with 'Beminal' Forte"

**improve nutrition—
accelerate
recovery with**

**BEMINAL
FORTE**



Therapeutic B Factors with Vitamin C

A single capsule provides 250 mg. of vitamin C and massive doses of B factors to meet the need when requirements are high and reserves are low. Prescribe "Beminal" Forte during convalescence, pre- and postoperatively, and for patients on special diets to improve the prognosis and accelerate recovery.

Supplied: No. 817 — Bottles of 100 and 1,000 capsules.

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6014

7 per cent free



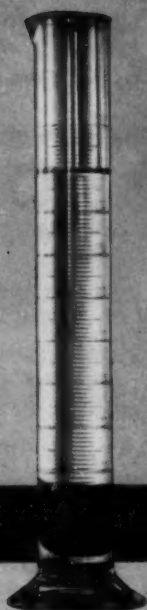
14 per cent acetylated



79 per cent glucuronide*



*Highly soluble yet retaining some antibacterial effectiveness



UNIQUE EXCRETION PATTERN MAKES MADRIBON SAFER



THE RATE OF MADRIBON EFFECTIVENESS IS HIGH

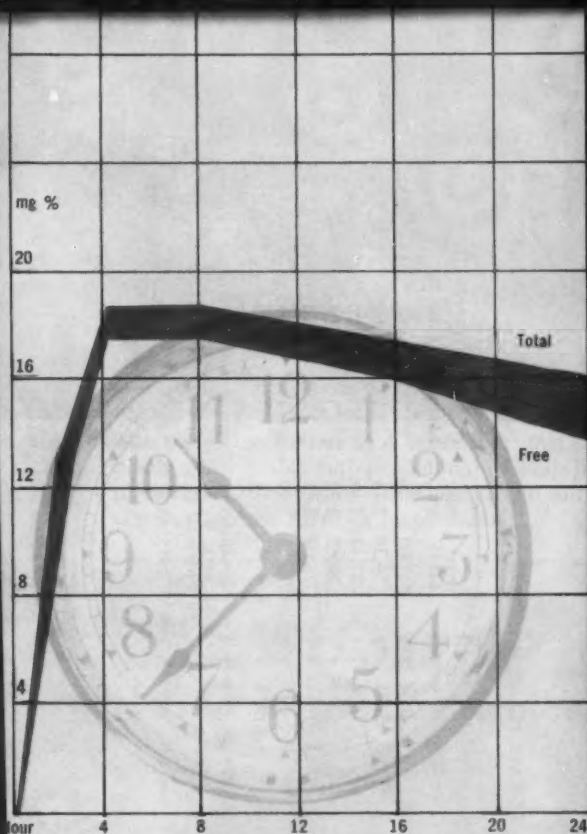
4 sound reasons to prescribe Madribon in respiratory tract infections

Safe low-dosage sulfonamide,
backed by 76 published reports

In extensive clinical studies, Madribon has accumulated an unexcelled safety record. The total incidence of side reactions with Madribon lies below 2 per cent; those that have occurred were generally mild and transitory.

Reported effectiveness of Madribon registers up to 90 per cent in a large variety of respiratory, urinary tract and soft tissue infections.

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Staphylococcus aureus hemolyticus • beta hemolytic streptococci • pneumococci • *K. pneumoniae* • *H. influenzae* • *Ps. aeruginosa* • *B. proteus* • *E. coli* • *Shigella* • *Salmonella* • paracolon bacilli

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PRIVATE PLANE INDUSTRY STATISTICS

YEAR	TOTAL UNITS SHIPPED	TOTAL MFRS. BILLINGS (MILLION \$)	ROCKWELL-STANDARD % OF TOTAL UNITS	BEECH AIRCRAFT % OF TOTAL UNITS	CESSNA AIRCRAFT % OF TOTAL UNITS	PIPER AIRCRAFT % OF TOTAL UNITS	ALL OTHERS % OF TOTAL UNITS
1947	15,594	58.1	—	8.3	15.3	22.2	54.2
1948	7,037	32.4	—	10.6	23.2	21.0	45.2
1949	3,406	17.7	—	10.0	25.1	37.5	27.4
1950	3,386	19.2	—	14.4	33.9	32.7	19.4
1951	2,302	16.9	—	18.6	45.6	47.0	10.1
1952	3,058	26.2	1.3	13.5	37.8	38.0	nominal
1953	3,788	34.5	1.8	12.5	37.8	48.5	nominal
1954	3,071	43.5	2.2	10.3	39.1	38.8	nominal
1955	4,434	68.3	1.6	15.3	36.4	42.2	nominal
1956	6,738	103.8	2.3	10.8	48.1	34.5	4.4
1957	6,118	99.7	2.3	12.9	40.7	37.6	6.6
1958	6,414	101.9	1.5	10.8	45.6	33.8	8.3
1959	7,689	129.9	1.9	11.6	46.6	32.9	7.0
*1960	3,775	73.8	1.4	12.8	47.2	33.4	4.8

*First five months.

FINANCIAL BACKGROUND OF LEADING PRIVATE PLANE MAKERS

YEAR ENDED SEPT. 30	BEECH AIRCRAFT			CESSNA AIRCRAFT			PIPER AIRCRAFT		
	*NET SALES	*NET INC.	COMMON SHARE (\$) DIVS. PAID	*NET SALES	*NET INC.	COMMON SHARE (\$) DIVS. PAID	*NET SALES	*NET INC.	COMMON SHARE (\$) DIVS. PAID
1960	E102.00	—	E5.50	E1.20	79%—56%	E103.00	E2.45	0.73	40%—28½%
1959	89.54	3.97	4.74	1.60	65	105.79	2.47	0.58½	34%—14½%
1958	95.89	3.32	4.03	1.50	30%—18	86.16	1.87	0.47	16%—7½%
1957	103.90	3.37	4.09	1.14½	31¼—15½	70.05	1.53	0.42	13¼—5%
1956	74.54	3.33	4.04	1.09	26½—17¾	66.27	1.66	0.34½	13¼—6%
1955	76.97	3.59	4.35	0.89	23¾—16½	60.00	1.12	0.29	8¼—4%
1954	78.03	3.39	4.11	0.73	18¾—7½	54.11	0.86	0.14	5½—2

Capitalization: common stock, 887,000 shares (\$1 par); 16.3% owned by O. A. Beech directly and as trustee and guardian in March, 1960.

Capitalization: Long term debt, \$6,030,000; common stock, 3,241,007 shares (\$1 par).

Capitalization: Common stock, 1,072,393 shares (\$1 par); W. T. Piper owned 14.3% and controlled an additional 15.9% on March 31, 1960.

*In millions of dollars. †Calendar years and to Aug. 24, 1960. ‡Plus stock, 2Adj. for stock div, of 10% in 1957, 25% in 1955. *Adj. for 3-for-1 split in 1960 & for stock div. of 10% in 1958 & 5% in 1957. E—Estimated.



The physician listens to a tense, nervous patient discuss her emotional problems. To help her, he prescribes Meprospan® (400 mg.), the only continuous-release form of meprobamate.



The patient takes one Meprospan-400 capsule at breakfast. She has been suffering from recurring states of anxiety which have no organic etiology.



She stays calm while on Meprospan, even under the pressure of busy, crowded supermarket shopping. And she is not likely to experience any autonomic side reactions, sleepiness or other discomfort.



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Peacefully asleep . . . she rests, undisturbed by nervousness or tension. (Samples and literature on Meprospan available from Wallace Laboratories, Cranbury, N. J.)

extension of the Cessna and Piper lines into the twin engine field. This was the chief factor behind a seemingly indifferent record through 1957. However, the company has taken and is taking aggressive steps to widen its sales base and to broaden its sales organization. During the period from 1954 through 1960, Beech's percentage of military business dropped from 73.3% of the total to under 50%. We believe it will decline in 1961 to 42%. Military business is even less important to earnings.

Sales for the year to September 30, 1960, are estimated at over \$100 million, up from the \$89.5 million of the prior year. All of the gain is from commercial plane volume, since military business is off slightly. Final-quarter results will be adverse, because the old-model cleanup at the manufacturer's level occurred earlier this year, but full-year profits should approximate \$5.50 a share, a new high.

The outlook for 1961 is for a 20% gain in general aircraft sales. Military business will probably decline, although Beech would be an important beneficiary, in all likelihood, if the B-70 program is revived. Since present facilities are adequate to handle \$200 million in sales, no large cash drain is anticipated. Finances are strong. Stockholders were scheduled to vote September 8 to split the stock 3-for-1. An increase in the dividend undoubtedly will be considered.

We do not know what effect the lower fourth-quarter earnings will have on the market, but believe the impact will be neutralized by the stock split and expected dividend increase.

CESSNA AIRCRAFT—Cessna's product mix is more diversified than that of its principal competitors. We estimate that military sales will be down to only one-fifth of the total, with military earnings even less important in 1960-61. Commercial aircraft volume is over 50% of sales. Cessna is regarded as the most aggressive of the major companies in this industry, and its position has improved correspondingly in the past decade.

Sales and profits this year are falling short of earlier goals, reflecting difficulties in the newly acquired Aircraft Radio Corporation (9% of sales) and in the Industrial Products

INDEX OF EARNINGS PER SHARE (1954 = 100)

	Beech	Cessna	Piper	S.&P. 425 Ind.
1954	100	100	100	100
1955	106	130	352	131
1956	98	193	626	122
1957	99	178	639	121
1958	98	217	513	102
1959	115	287	652	122
E1960	134	285	815	128

E—Estimated.

Division (11% of sales). The latter was expanded in expectation of an increase in business that has not yet materialized, because of the collapse of the farm equipment industry, an important market for its hydraulic assemblies. Aircraft Radio has undergone a management change, and new product development has been accelerated.

The problems facing the company seem temporary in nature. Despite the disappointments, earnings will almost equal the \$2.47 a share of 1958-59. We look for somewhat higher profits in 1960-61, even though military volume will continue to decline. Because of the recent stock split, there will probably be no stock extra or further dividend increase until 1961.

This issue, represents sound value in growth portfolios.

PIPER AIRCRAFT is unique among the three major private plane makers in that its sales consist almost entirely of commercial aircraft. Military work is nominal. Although the company recently acquired a small electronics concern, the latter is not significant to the total operation. Piper's real earnings progress dates from its entry into the light twin-engine market. Previously, it made only single-engine models. This change has brought about rapid sales growth and wider profit margins. Its average price per plane should continue to increase at least through 1962.

It is estimated that 1959-60 (September 30 fiscal year) sales will be \$43 million, versus \$34.3 million in 1958-59, and that profits will equal \$3.75 a share, compared with \$2.86 a share, even after a 10% dilution from the recent common stock offering. A portion of the



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gain will result from absence of the strike that cut production last year by some two weeks. Looking ahead into fiscal 1961, we estimate that commercial plane sales will continue to grow, boosted by higher shipment of twin-engine planes. Margins should widen further.

The current \$0.25 quarterly dividend will be supplemented with a \$0.05 quarterly extra.

In 1961, we look for a higher regular payment. Following the 100,000 share financing in mid-1960, the company is in the best financial position in its history. No further financing is foreseen.

We believe that Piper should command a higher multiple of earnings than its competitors because it is almost entirely in general aircraft.

GOOD GROWTH PROSPECTS FOR BORON

Progress Made in Developing Commercial Markets—Growth Rate Almost 10% Annually—Research Stressed—Prices, Margins Firm

Approximately a year ago the investment glamour of the boron industry was somewhat tarnished by the announcement that the boron fuel program would be cut back. Boron had earlier been programmed as the prime fuel for the B-70 supersonic bomber, and some \$200 million had been spent on its development at the time the project was shelved. Although indications now are that the B-70 program may be revived, there is little likelihood that boron will be adopted as a fuel despite continuing research in this direction. More likely, boron may eventually be adopted as a missile fuel, but this is still some years off.

Excluding these considerations, however, the industry has continued to progress in commercial markets where demand has been growing at 8% to 10% yearly and sales are now estimated to run some \$70 million. Production for 1960 will approximate one million short tons (expressed in terms of borax decahydrate), compared with 715,000 tons in 1955 and only 275,000 tons in 1945 when demand began to skyrocket. The major outlet for boron chemicals is the ceramics industry, including high-temperature resistant glass (sealed beam headlights, cooking utensils, etc.) and porcelain enamel, such as in the enamel coating of steel and aluminum sidings for curtain wall building construction. Probably the fastest growing use for borax during the past decade has been in fiberglass where the addition of borax imparts strength and brilliance. Other important uses are in the manufacture of soaps, adhesives, automotive fuels, flame-proofing materials, and a host of other chemical compounds.

BORON INDUSTRY DATA

*Capacity of Producers	—Major Markets—
Tons	Glass 28%
Annual	Porcelain Enamel . . 14
American Potash 175,000	Weed Control . . . 10
Stauffer Chem. . . 50,000	Fertilizers 4
U. S. Borax . . . 750,000	Others 44%

*Estimated by Standard & Poor's.

● **New Markets**—The outlook for continuing growth in present uses for boron remains promising, and, meanwhile, heavy research is beginning to develop some interesting new applications in untapped areas. Research outlays of *American Potash & Chemical*, *U. S. Borax & Chemical*, and *Stauffer Chemical* are reported to be in excess of \$3 million for experimental work on boron compounds. A number of commercial products have recently been introduced, including a fire control spray and several herbicides for weed control. Recently, some catalytic uses for boron compounds have been reported, and a group of polymers in development could tie boron to the growth of the temperature-resistant plastics industry. With the help of new product research, the growth rate in boron consumption should be well maintained, and demand by 1970 is expected to exceed 2 million short tons annually.

● **Industry Structure**—*U. S. BORAX & CHEMICAL* is by far the dominant influence in the boron industry, supplying some 70% of the domestic market from its open pit mine at Boron, California. This is the only known large-scale deposit of sodium borate ore in the world today and it places *U.S. Borax* in a

Factual Clinical Data: Female, 25, torticollis due to trauma; slightest motion of head extremely painful. Fifteen minutes after administration of 10 cc. of ROBAXIN Injectable, muscle spasm was relieved and head could be moved without pain.

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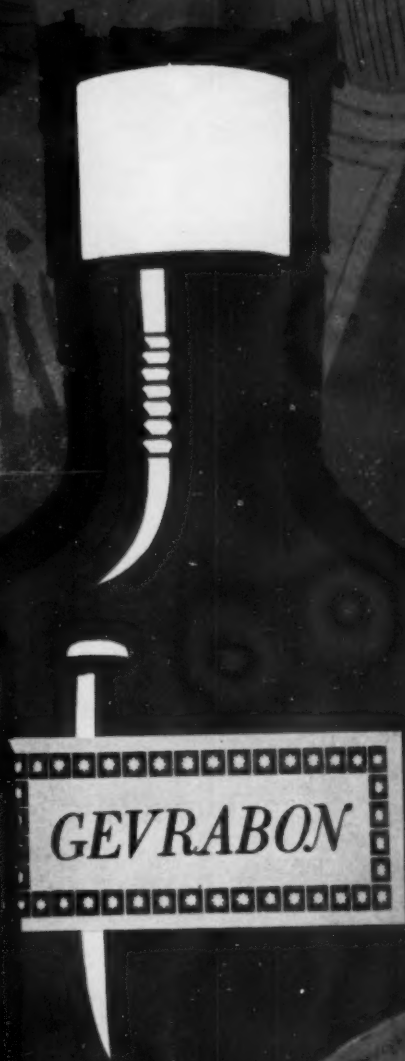
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Liquid Vitamins-Minerals Lederle

This liquid vitamin-mineral formula has a tangy, sherry flavor. It can be served plain, chilled, or poured over ice (as a refreshing appetite stimulant). Particularly pleasing to geriatric patients and others who dislike swallowing capsules. Two tablespoonfuls a day.

EACH FLUID OUNCE (30 CC.) CONTAINS: Thiamine HCl (B₁) 5 mg.; Riboflavin (B₂) (as the phosphate) 2.5 mg.; Vitamin B₁₂ 1 mcgm.; Niacinamide 50 mg.; Pyridoxine HCl (B₆) 1 mg.; Pantothenic Acid (as panthenol) 10 mg.; Choline (as tricholine citrate) 100 mg.; Inositol 100 mg.; Calcium (as Ca glycerophosphate) 48 mg.; Phosphorus (as Ca glycerophosphate) 39 mg.; Iodine (as KI) 0.1 mg.; Potassium 10 mg.; Magnesium (as MgCl₂·6H₂O) 2 mg.; Zinc (as ZnCl₂) 2 mg.; Manganese (as MnCl₂·4H₂O) 2 mg.; Iron (as ferrous gluconate) 20 mg.; Alcohol 18%.

*Ask your Lederle Representative for
complete information on other Lederle vitamins.*



strong position with respect to costs and reserves. The other major supplier is AMERICAN POTASH & CHEMICAL, which extracts borax from the brine of Searles Lake in California through a process of evaporation yielding potash and lithium by-products. STAUFFER, also on Searles Lake, utilizes a similar procedure but is only a 5% industry factor.

Reserves are ample for many decades to come for all producers, and, with the exception of some calcium borate available in Turkey and South America (through an affiliate of U.S. Borax), the present world market is controlled from this country. The pricing structure of the industry has been historically strong. The most recent general increase occurred in July 1959, under the leadership of U.S. Borax.

One long-term risk for the U.S. boron industry lies in the possible development of a major new sodium borate deposit behind the Iron Curtain. With some 40% of production of boron chemicals going into overseas markets, U.S. Borax would be adversely affected should competition develop from the Soviet bloc. As yet, however, there has been no indication of any discoveries, and the Soviet bloc continues to purchase borax on the world market through intermediaries whenever it becomes available.

From an investment point of view, the boron industry offers excellent growth characteristics, based on the expansion of present markets, potential new discoveries, and a firm price structure. Operating margins for U.S. Borax run some 25%. The trend is likely to be higher, although no price increase is expected for the next few years.

For straight investment in the boron industry, U.S. BORAX offers the best value based on its outstanding reserve position and strong world marketing organization. However, as a diversified investment in the chemical industry with good representation in boron chemicals, AMERICAN POTASH & CHEMICAL is preferred.

AMERICAN POTASH & CHEMICAL—An estimated 20% of this company's sales are in boron chemicals produced from the brine of

Searles Lake at Trona, California. By-products include sodium chemicals, potash, and lithium, and the company also has a strong position in electrochemicals and the rare earths. Prospects for 1960 are favorable, with earnings estimated at \$2.35 a share against \$2.17 in 1959. More important, a major capital program under way will expand boron capacity some 35% and bring the company into the electromanganese field through the construction of a \$5 million plant at Aberdeen, Mississippi.

With these projects scheduled for completion by early 1962, earnings in that year could advance to substantially higher levels. Meanwhile the expiration of the company's lithium contract with the Atomic Energy Commission at the end of 1960 will not have a major impact on next year's results.

Based on these factors and the excellent management record, the shares offer excellent value in the chemical group. Moreover, the likelihood of an eventual merger on favorable terms should not be disregarded, in view of the company's strong West Coast position.

U.S. BORAX & CHEMICAL, is the principal world producer of boron products. Some 50% of sales are estimated to be in boron chemicals, another 25% in "20 Mule Team" cleansing products made from boron, and the rest in potash and other minor products. Earnings for the fiscal year ending September 30, 1960, are estimated at \$1.50 a share, up from \$1.29 in 1958-59. A further gain is indicated for the coming fiscal year, aided by higher average prices on potash and increasing efficiency of the company's open pit mine and refining operation at Boron, California.

In potash, the company's reserves are located at Carlsbad, New Mexico, and it also has options on substantial acreage in the province of Saskatchewan, Canada, which may be developed.

Based on the excellent outlook for the boron industry, earnings over the next few years should show a continuing favorable trend. Thus, barring the discovery of major reserves elsewhere in the world, long-term commitments should work out well.



Effective against more than 30 of the commonly encountered pathogens, including **staph** and **strep**, Panalba KM assures you of prompt control in potentially-serious pediatric infections. Panalba KM makes a pleasant-tasting, readily accepted suspension.

When sufficient water is added to fill the bottle to a total volume of 40 cc. (or 60 cc.) and the contents shaken, each 5 cc. (one teaspoonful) contains:

Panmycin (tetracycline) equivalent to tetracycline hydrochloride 125 mg.
Albamycin (as novobiocin calcium) 62.5 mg.
Potassium Metaphosphate 100 mg.

Supplied: In 40 cc. and 60 cc. bottles.

*TRADEMARK, REG. U. S. PAT. OFF.

THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN

in potentially-
serious pediatric
infections,

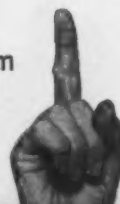
make

Upjohn

Panalba
KM *Granules

PANMYCIN® PLUS ALBAMYCIN®
WITH POTASSIUM METAPHOSPHATE (KM)

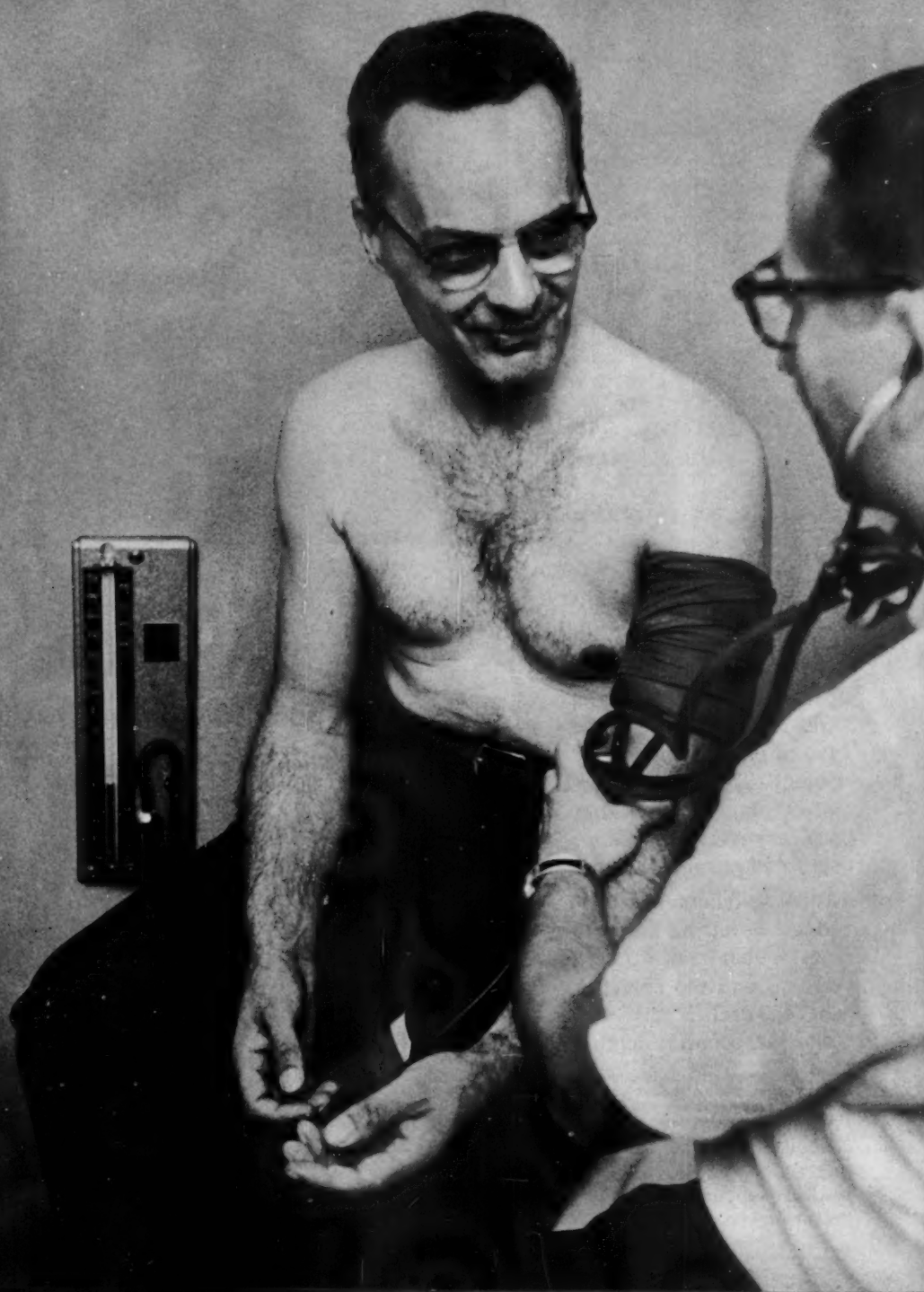
your broad-spectrum
antibiotic
of first resort



this hypertensive patient prefers Singoserp

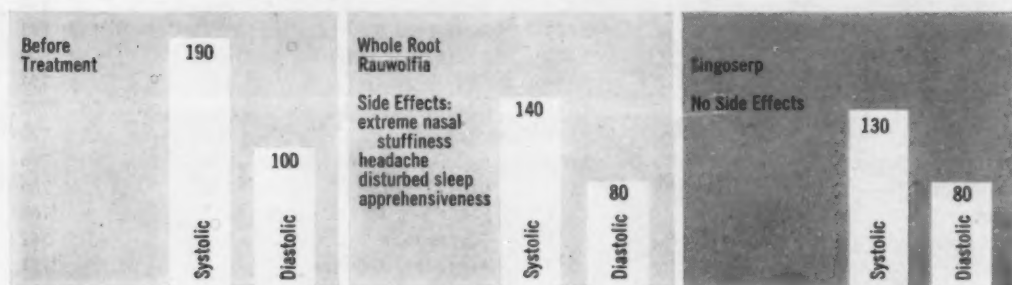
Patient's comment: "The other drug [whole root rauwolfia] made me feel lazy. I just didn't feel in the mood to make my calls. My nose used to get stuffed up, too. This new pill [Singoserp] doesn't give me any trouble at all."

Photo used with patient's permission.



...and so does his physician

Clinician's report: J. M., a salesman, had a 16-year history of hypertension and was rejected by the U.S. Army because of high blood pressure. When treated with whole root rauwolfia, patient had satisfactory blood pressure response but could not tolerate side effects. Singoserp, in a dose of 0.5 mg. daily, not only reduced patient's blood pressure still further, but did not produce any side effects.



Many hypertensive patients and their physicians prefer Singoserp® because it usually lowers blood pressure without rauwolfia side effects

SUPPLIED: Singoserp Tablets, 1 mg. (white, scored). Also available: Singoserp®-Esidrix® Tablets #2 (white), each containing 1 mg. Singoserp and 25 mg. Esidrix; Singoserp®-Esidrix® Tablets #1 (white), each containing 0.5 mg. Singoserp and 25 mg. Esidrix. Complete information sent on request.

Singoserp® (syrosingopine CIBA)
Singoserp®-Esidrix® (syrosingopine and hydrochlorothiazide CIBA)

CIBA
SUMMIT, NEW JERSEY

a/josomn



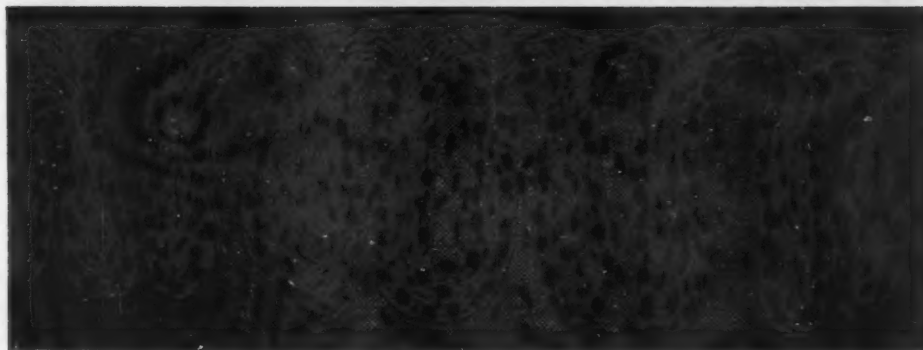
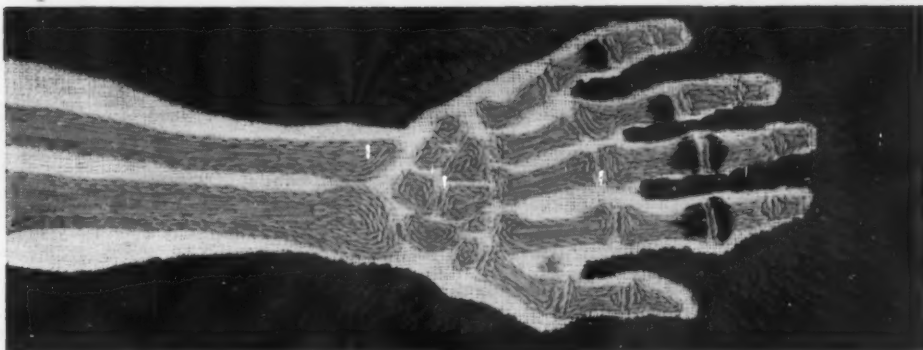
100 LARGEST U. S. CORPORATIONS Based on 1959 Sales (In Millions of Dollars)

	SALES OR REVENUES		SALES OR REVENUES
GENERAL MOTORS CORP.	11,233	CITIES SERVICE	995
STANDARD OIL (N. J.)	¹¹ 8,522	U. S. RUBBER	977
AMERICAN TEL. & TEL.	¹² 7,393	BORDEN CO.	941
FORD MOTOR CO.	5,357	WOOLWORTH (F. W.)	917
GREAT A. & P.	¹⁵ 5,049	EASTMAN KODAK	914
GENERAL ELECTRIC	4,350	AMERICAN STORES	²⁰ 889
SEARS, ROEBUCK	¹⁴ 4,036	PENNSYLVANIA RAILROAD	888
U. S. STEEL	3,643	DOUGLAS AIRCRAFT	¹⁸ 884
SOCONY MOBIL OIL	¹³ 3,459	AMERICAN MOTORS	¹⁷ 870
GULF OIL	2,713	ALUMINUM CO. OF AM.	858
TEXACO, INC.	¹² 2,678	NATIONAL TEA	830
CHRYSLER CORP.	2,643	MONSANTO CHEMICAL	811
SWIFT & CO.	¹² 2,475	BURLINGTON INDUSTRIES	¹⁸ 805
SAFeway STORES	2,383	NEW YORK CENTRAL	773
WESTERN ELECTRIC	2,315	CONTINENTAL OIL	¹¹ 772
DU PONT (E. I.)	2,114	GOODRICH (B. F.)	772
BETHLEHEM STEEL	2,079	JONES & LAUGHLIN STEEL	766
STANDARD OIL (IND.)	¹¹ 1,957	INTL. TEL. & TEL.	766
KROGER CO.	1,912	FEDERATED DEPT. STORES	¹⁷ 760
WESTINGHOUSE ELECTRIC	1,911	CATERPILLAR TRACTOR	742
ARMOUR & CO.	¹¹ 1,870	ANDERSON, CLAYTON	¹⁷ 737
GENERAL DYNAMICS	1,812	NATIONAL STEEL CORP.	737
SHELL OIL	¹¹ 1,810	SUN OIL CO.	736
STANDARD OIL OF CALIF.	¹¹ 1,795	FOOD FAIR STORES	¹⁷ 734
BOEING AIRPLANE	1,612	ALLIED CHEMICAL	720
NATL. DAIRY PRODUCTS	1,606	DOW CHEMICAL	¹⁷ 705
GOODYEAR TIRE & R.	1,579	INLAND STEEL	705
UNION CARBIDE	1,531	OLIN MATHIESON CHEM.	702
PENNEY (J. C.)	¹¹ 1,437	SOUTHERN PACIFIC CO.	690
RADIO CORP. OF AMER.	1,388	B N DIX AVIATION	¹⁶ 690
PROCTER & GAMBLE	¹¹ 1,369	MAY DEPT. STORES	¹⁶ 684
INTERNATL. HARVESTER	¹¹ 1,363	ALLIED STORES	¹⁶ 679
INTERNATL. BUS. MACH.	1,310	GENERAL T. & RUBBER	¹⁶ 677
LOCKHEED AIRCRAFT	1,302	McKESSON & ROBBINS	¹⁶ 677
REYNOLDS (R. J.)	¹¹ 1,287	CORN PRODUCTS	676
SINCLAIR OIL	¹¹ 1,232	AMER. METAL CLIMAX	669
MONTGOMERY WARD	¹¹ 1,223	WINN-DIXIE STORES	¹⁶ 666
FIRESTONE TIRE & R.	¹¹ 1,188	WILSON & CO.	¹⁶ 656
SPERRY RAND	¹¹ 1,173	BORG-WARNER	650
PHILLIPS PETROLEUM	¹¹ 1,163	ATCHISON, TOP. & S.F.	634
AMERICAN TOBACCO	¹¹ 1,161	ANACONDA COMPANY	633
CONTINENTAL CAN	1,147	PURE OIL	¹¹ 616
AMERICAN CAN	1,107	CONSOLIDATED EDISON	615
GENERAL FOODS	¹¹ 1,087	YOUNGSTOWN SHEET & T.	608
GEN. TEL. & ELECTRO.	1,081	PITTSBURGH PLATE GL.	607
UNITED AIRCRAFT CORP.	1,081	GRAND UNION	¹⁶ 603
REPUBLIC STEEL	1,077	AMERICAN CYANAMID	584
NORTH AMER. AVIATION	¹¹ 1,045	PACIFIC GAS & ELEC.	583
INTERNATIONAL PAPER	1,030	COLGATE-PALMOLIVE	582
ARMCO STEEL	1,022	NATL. DISTILLERS & CHEM.	¹¹ 576

Fiscal years ended as follows: ¹May 1959. ²June 1959. ³July 1959. ⁴Sept. 1959. ⁵Oct. 1959. ⁶Nov. 1959. ⁷Jan. 1960. ⁸Feb. 1960. ⁹Mar. 1960. ¹⁰Apr. 1960. ¹¹Including excise taxes, which exceed 40% in the case of tobacco and distilling companies. ¹²Excluding Western Electric, shown separately.

Note: Certain banks and insurance companies also rank among the leading U. S. enterprises, but are not listed above since revenue figures are not strictly comparable.

a promise fulfilled



All corticosteroids provide symptomatic control in rheumatoid arthritis, inflammatory dermatoses, and bronchial asthma. They *differ* in the frequency and severity of side effects. Introduced in 1958, ARISTOCORT Triamcinolone bore the promise of high efficacy and relative safety. Physicians today recognize that the promise has been fulfilled . . . as evidenced by the high rate of refilled ARISTOCORT prescriptions.

Aristocort[®] Triamcinolone LEDERLE



LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, N.Y.

**INVESTMENT
REPORTS
CURRENTLY
AVAILABLE**

Material concerning the following industries and corporations is available on request from the firms indicated. You can do us a favor if you mention Medical Times as the source of your information.

REPORT ON	PAGES	AVAILABLE FROM	NEW YORK ADDRESS
Allied Chemical Corp.	4	Smith, Barney & Co.	20 Broad Street
Allied Paper Corp.	5	Adams & Peck	120 Broadway
American Photocopy	7	Herbert E. Stern & Co.	52 Wall Street
Borman Food Stores	3	Goodbody & Co.	2 Broadway
Bristol-Myers Co.	5	Smith, Barney & Co.	20 Broad Street
British Columbia Power Corp.	4	Francis I. duPont & Co.	1 Wall Street
Decca Records, Inc.	3	Halle & Stieglitz	52 Wall Street
Empire District Electric Co.	3	Smith, Barney & Co.	20 Broad Street
General Cigar Co.	3	Laird, Bissell & Meeds	120 Broadway
Genesco, Inc.	4	Eastman, Dillon, Union Sec.	15 Broadway
Grumman Aircraft Engr. Corp.	6	Joseph Walker & Sons	120 Broadway
Harbison-Walker Refractories Co.	3	Stearns & Co.	72 Wall Street
Holt, Rinehart & Winston, Inc.	9	Smith, Barney & Co.	20 Broad Street
Hunt Foods & Industries, Inc.	4	Sutro & Co.	120 Broadway
Ideal Cement Co.	7	Smith, Barney & Co.	20 Broad Street
International Minerals & Chemical Corp.	3	Parrish & Co.	40 Wall Street
Lily-Tulip Corp.	3	Smith, Barney & Co.	20 Broad Street
Martin Co.	7	A. C. Allyn & Co.	44 Wall Street
Midland-Ross Corp.	6	Grimm & Co.	2 Broadway
Newport News Shipbuilding	4	Theodore Tsolainos & Co.	44 Wall Street
North American Aviation, Inc.	3	Hornblower & Weeks	40 Wall Street
Pacific Coast Properties, Inc.	5	Bear, Stearns & Co.	1 Wall Street
Peabody Coal Co.	8	Dominick & Dominick	14 Wall Street
Publishing Industry	6	Investornews, Aug. 1960	
Statham Instruments, Inc.	7	Paine, Webber, Jackson & Curtis	25 Broadway
Stewart-Warner Corp.	4	Francis I. duPont Co.	1 Wall Street
Texas Gas Transmission Corp.	9	Dean Witter & Co.	14 Wall Street
Truax-Traer Coal Co.	4	Francis I. duPont Co.	1 Wall Street
Vick Chemical Co.	5	Smith, Barney & Co.	20 Broad Street
Victoreen Instrument Co.	6	Cruttenden, Podesta	37 Wall Street
United Oil of California	5	Laird, Bissell & Meeds	120 Broadway
United-Greenfield Corp.	4	Francis I. duPont Co.	1 Wall Street
United States Lines	4	Francis I. duPont Co.	1 Wall Street
White Motor Company	4	Francis I. duPont Co.	1 Wall Street

FOR SIMULTANEOUS IMMUNIZATION AGAINST 4 DISEASES:

Poliomyelitis-Diphtheria-Pertussis-Tetanus

PEDI-ANTICS



TETRAVAX®

DIPHTHERIA AND TETANUS TOXOIDS WITH PERTUSSIS AND POLIOMYELITIS VACCINES

now you can immunize against more diseases...with fewer injections

Dose: 1 cc.

Supplied: 9 cc. vials in clear plastic cartons. Package circular and material in vial can be examined without damaging carton. Expiration date is on vial for checking even if carton is discarded.



For additional information, write Professional Services, Merck Sharp & Dohme, West Point, Pa.



MERCK SHARP & DOHME, DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

TETRAVAX IS A TRADEMARK OF MERCK & CO., INC.

U. S. GYPSUM PROFITS DOWN SLIGHTLY

Earnings this year will be down somewhat from the record \$5.70 a share cleared in 1959, perhaps to \$5-\$5.25 a share. The drop in residential building starts is chiefly responsible, although a partial offset is being provided by the increased volume of repair and maintenance work. Gypsum is well established as a building material, and there is no threat that a new competing product will preempt its position. While nothing specular is seen in respect to new uses, the trend toward thicker walls in home construction is increasing the demand

for heavier gypsum boards. The FHA now requires a minimum half-inch wall. The company is selling a fair proportion of $\frac{5}{8}$ -inch size and is experimenting with a $\frac{3}{4}$ -inch board. Large mineral reserves and the strategic position of its plants fortify the company's longer-range prospects. The \$0.60 quarterly dividend should continue to be supplemented with occasional extras, suggesting another total payout of \$3 a share this year. *This quality stock is well suited for inclusion in diversified investment portfolios.*

FROM COAST TO COAST



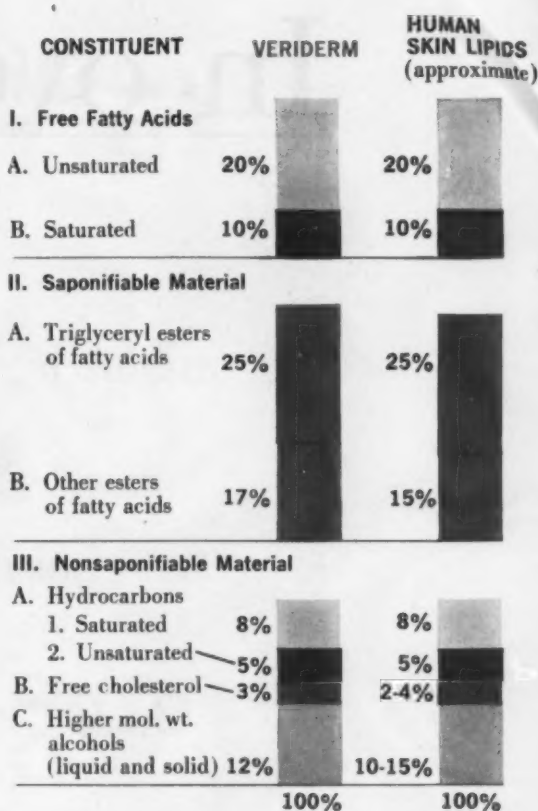
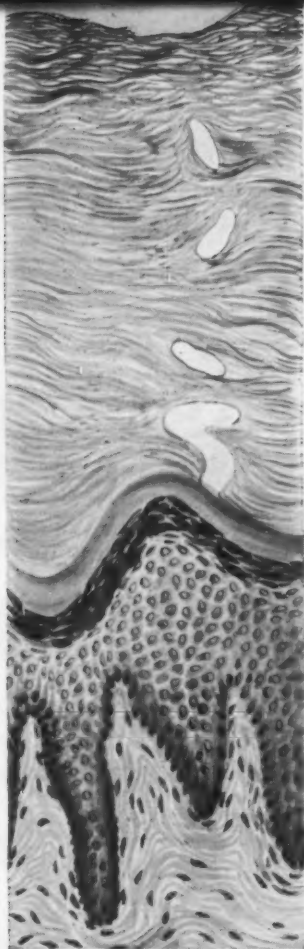
Plagued by a price war, *United Fruit* is experiencing a further slump in earnings. However, a number of changes, internally and otherwise, have been instituted, and the company has entered the variety banana field. Its Lacatan banana, to be marketed in pre-cooled plantation-packaged form, is expected to be shipped in commercial volume by the end of the year, at which time a substantial promotional campaign will be launched. . . . This year's sales of *United Engineering & Foundry* will be well above the \$61 million of 1959, but much of current business on large equipment orders was booked at low prices. As a consequence, earnings may be down to \$2 a share or less from last year's \$2.38 and the record \$2.75 in 1958.

Last year for the first time, TV billings of *Metropolitan Broadcasting* exceeded those of

radio, although the latter still provided the larger profits. TV billings and profits will show another sizable increase this year, and henceforth should grow considerably faster than radio. Full-year earnings should be well above the \$0.97 a share of 1959, despite the decline in the first half.

Hall (W. F.) Printing will print all Montgomery Ward catalogues starting this fall. This business eventually should swell earnings, but break in expenses of new facilities may cause fiscal 1961 results to fall slightly below the \$2.46 a share earned in the year ended March 31, 1960 . . . *Washington Steel* has chalked up an outstanding record in its 15 years of existence as a non-integrated cold roller of stainless steel and strip, but competitors have awakened to what can be done. The management seems prepared to diversify or integrate back through the melt stage in order to enhance earnings. The latter are estimated at \$3.35 a share for the fiscal year ending September 30, compared with \$4.41 the year before.

Reflecting unusually favorable outdoor construction weather, as well as the above-average growth of its service area, *Pacific Clay Products* promises to net about \$2.80 a share this year, a new record, up from \$2.37 in 1959. . . . *Signal Oil & Gas* is expected to overcome the lag in first-half profits. Results for the full



New from Upjohn... a base that approximates normal skin oils

Veriderm, developed by Upjohn research, is a unique dermatologic medium; both qualitatively and quantitatively, it parallels the oily constituents found in normal human skin. Veriderm Medrol is designed specifically to enhance steroid dispersion and effectiveness. Less greasy than ointments, less drying than lotions, Veriderm Medrol corrects dry skin conditions associated with many dermatoses.

The outstanding effectiveness of Medrol, the active agent, elicits prompt and often dramatic response in neurodermatitis, contact dermatitis, anogenital pruritus, atopic dermatitis, seborrheic dermatitis.

Available in four formulations:

Veriderm Medrol Acetate

0.25% — Each gram contains:
Medrol (methylprednisolone) Acetate (0.25%) 2.5 mg.
Methylparaben 4 mg.
Butyl-p-hydroxybenzoate 3 mg.

1% — Each gram contains:
Medrol (methylprednisolone) Acetate (1%) 10 mg.
Methylparaben 4 mg.
Butyl-p-hydroxybenzoate 3 mg.

For secondarily infected dermatoses

Veriderm Neo-Medrol Acetate

0.25% — Each gram contains:
Medrol (methylprednisolone) Acetate (0.25%) 2.5 mg.
Neomycin Sulfate (equivalent to 3.5 mg. neomycin base) 5 mg.
Methylparaben 4 mg.
Butyl-p-hydroxybenzoate 3 mg.

1% — Each gram contains:
Medrol (methylprednisolone) Acetate (1%) 10 mg.
Neomycin Sulfate (equivalent to 3.5 mg. neomycin base) 5 mg.
Methylparaben 4 mg.
Butyl-p-hydroxybenzoate 3 mg.

*Trademark †Trademark, Reg. U. S. Pat. Off. — methylprednisolone, Upjohn

The Upjohn Company, Kalamazoo, Michigan

in 5 Gm. tubes

Upjohn

Veriderm* Medrol†

the corticosteroid that hits
the disease, but spares the patient.



In over five years



...for the tense and nervous patient

Despite the introduction in recent years of "new and different" tranquilizers, Miltown continues, quietly and steadfastly, to gain in acceptance. Meproamate (Miltown) is prescribed by the medical profession more than any other tranquilizer in the world.

The reasons are not hard to find. Miltown is a *known* drug. Its few side effects have been fully reported. *There are no surprises in store for either the patient or the physician.*

of clinical use...

Proven

in more than 750 published clinical studies

Effective

for relief of anxiety and tension

Outstandingly Safe

- 1 simple dosage schedule produces rapid, reliable tranquilization without unpredictable excitation
- 2 no cumulative effects, thus no need for difficult dosage readjustments
- 3 does not produce ataxia, change in appetite or libido
- 4 does not produce depression, Parkinson-like symptoms, jaundice or agranulocytosis
- 5 does not impair mental efficiency or normal behavior

Miltown[®]

meprobamate (Wallace)

Usual dosage: One or two 400 mg. tablets t.i.d.

Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets;
or as MEPROTABS[®]—400 mg. unmarked, coated tablets.



WALLACE LABORATORIES / Cranbury, N. J.

® TRADE-MARK

CW-0028

year should be close to the \$1.70 a share netted in 1959. . . . Prospects are improving that *Todd Shipyard* will show a moderate profit for the fiscal year ending March 31, 1961, contrasted with a deficit of \$1.34 in 1959-60.

The higher rates effective August 17 should enable *Western Union* to bring its full-year earnings to within 10%-15% of the \$2.59 a share reported for 1959. For the first half, profits were down to \$0.91 from \$1.22. The full-year application of the new rates and those expected to become effective on private wire services later in 1960 point to a good earnings

recovery in 1961. . . . Faring even better than anticipated earlier, *Ranco Inc.* seems headed for earnings of about \$3.85 a share in the fiscal year ending September 30, up from \$2.93 the year before. Rapidly expanding foreign operations, particularly in West Germany, are a major factor in the increase. With numerous new overseas facilities scheduled to come on stream over the next several months, further gains are indicated for fiscal 1961. . . . Reflecting chiefly unsatisfactory conditions in the home appliance field, 1960 earnings of *Borg-Warner* are now estimated at \$3.25 a share against last year's \$4.36.

COLLINS RADIO GROWTH SLOWED

Earnings for the fiscal year ended July 31, 1960, although somewhat short of earlier expectations, are estimated at \$3.50 a share, up from \$1.95 the year before. Fourth-quarter comparisons were hampered by a strike (since settled) and the larger number of shares outstanding as a result of conversions. A sales gain of about 10% is anticipated in the current fiscal year, but, based on the present order backlog picture, the bulk of the rise probably will occur in the first half. However, share earnings comparisons are likely to be more favorable in the second half, when the com-

pany expects a more profitable product mix. A 4% stock dividend will be paid August 15. The market consistently has placed a lower valuation on this stock than other shares in the defense electronics field, because of the company's reliance on manned aircraft business.

Yet officials are confident that the concern's strong research capabilities will permit it to participate more fully in missile work whenever such a move seems desirable. *This stock merits retention, but we would be in no haste to add to commitments.*

STOP AND SHOP HAS IMPRESSIVE RECORD

This relatively small but rapidly growing supermarket chain thus far has operated exclusively in Massachusetts, Rhode Island, and Connecticut, but will soon open its first store in New Hampshire. With growth confined to mature areas, the company designs stores of a size to attain their maximum sales potential shortly after opening. Average annual sales of \$2.2 million per store are among the highest in the industry, and so is the return of some 23% on net worth. Of the 116 units, 68 were opened in the past five years and 10 were acquired in fiscal 1959. Plans call for some 15-18 new stores this year. On sales of some \$237

million, earnings in the fiscal year ended June 30, 1960, are estimated to have reached a new record of \$1.95 a share, up from \$1.62 the year before.

A further gain is in prospect. The company's policy is to pay small cash dividends (currently \$0.10 quarterly), supplemented with sizable stock dividends (25% each in the past two years).

Although this stock sells at a higher price-earnings ratio than the equities of larger food chains, the company's growth record warrants retention of holdings by those in a position to assume a degree of risk.



in the family circle...all-round, year-round
vitamin support with **ABDEC®** Kapseals®

ABDEC Kapseals provide comprehensive multivitamin protection all through the year. Each ABDEC Kapseal contains: Vitamin A-10,000 units (3 mg.); Vitamin D-1,000 units (25 mcg.); Vitamin C (ascorbic acid)-75 mg.; Vitamin B₁ (thiamine) mononitrate-5 mg.; Vitamin B₂ (G) (riboflavin)-3 mg.; Vitamin B₆ (pyridoxine hydrochloride)-1.5 mg.; Vitamin B₁₂ (crystalline)-2 mcg.; dl-Panthenol-10 mg.; Nicotinamide (niacinamide)-25 mg.; Vitamin E (supplied as d-alpha-tocopheryl acid succinate)-5 I. U. **DOSAGE:** for the average patient, 1 ABDEC Kapseal daily. ABDEC Kapseals are supplied in bottles of 50, 100, 250, and 1,000. Also available: ABDEC Drops in 15-cc. and 50-cc. bottles with calibrated plastic droppers.

PARKE, DAVIS & COMPANY • DETROIT 32, MICHIGAN

PARKE-DAVIS

CLUETT, PEABODY PROFITS UP

Indications are that this leading manufacturer of men's dress shirts will earn between \$4.50 and \$4.75 a share in 1960, up from last year's \$3.61, reflecting increased demand and broadening of its line. Some further improvement is also indicated in Sanforized royalties, which on a pretax basis are close to \$3 a share. If full-year profits materialize as expected, it would not be surprising to see some increase in the year-end dividend to bring total payments

above the \$2.50 of 1959. The major speculative interest in this situation still is in Clupak, the stretchable paper in which the company holds a 50% interest. There are now 12 licenses under this process. For the present, royalties will be reinvested in development and research, promotional efforts, and servicing. Ultimately, some sizable dividends could accrue to Cluett. *Considering basic values and the potentials of Clupak, the stock is attractive.*

1960 EARNINGS ESTIMATES

The following estimates of earnings per common share are based on information developed in recent field surveys, but are not necessarily management projections.

	INTERIM MOS. ENDED	EARNINGS PER SHARE		ANNUAL EARNINGS	
		1959	1960	1959	E1960
AMERICAN-MARIETTA	6 May	\$0.81	\$0.68	¹ \$2.03	¹ \$2.00
BALDWIN-LIMA-HAMILTON	6 June	0.63	0.26	1.17	0.80
COLLINS RADIO	9 April	1.25	2.96	¹ 1.95	² 3.50
GILLETTE CO.	6 June	1.52	1.84	3.34	3.75
MICROMATIC HONE	9 April	0.08	0.76	³ 0.30	³ 0.85
SIGNODE STEEL STRAPPING	6 June	⁴ 0.92	0.82	⁴ 3.22	2.75
UNITED-CARR FASTENER	6 June	1.68	1.48	3.60	3.60
UNITED ENG. & FDY.	6 June	1.29	0.95	2.75	2.00
WECO PRODUCTS	6 Mar.	0.60	0.72	¹ 1.42	¹ 1.40
WHITE MOTOR	6 June	3.33	2.41	6.94	5.50

E—Estimated. ⁴Adj. for stock split. ¹Years ended Nov. 30. ²Years ended July 31. ³Years ended Sept. 30.

NEW ITEMS BOOSTING GILLETTE'S NET

Sales and profits are being swelled by two new products—the adjustable razor introduced last year and the Super Blue Blade introduced in early 1960. The latter now accounts for about 21% of Gillette's blade volume. While it has cut into the market for older products, profit margins on the new blade are wider. Marketing will be extended overseas. Foreign operations already are highly important to the company, and the potential abroad is believed to be somewhat greater than at home. The

home permanent market has been narrowed because of the change in women's hair styles, but the Toni division has increased its share sufficiently that sales are up slightly. The Paper Mate pen subsidiary continues to be a profitable operation.

Full-year profits are estimated at a new record high of \$3.75 a share, up from \$3.34 in 1959. The \$0.62½ paid in 1959. *The stock has been a strong market performer this year and should be held.*

RECORD YEAR FOR BELL & HOWELL

This year's earnings are conservatively estimated at \$1.50 a share, up from \$1.33 in 1959. Demand for photographic equipment is holding up well, and the motion picture camera lines are benefiting from higher prices. Sales,

earnings, and backlog of Consolidated Electrodynamics, acquired last January, are all up, and considerable progress is being achieved in integrating the two organizations, with resultant cost savings. The only activity not in the black

IN CONTRACEPTION...



WHY IS SPEEDIER SPERMICIDAL ACTION IMPORTANT?

Because a swift-acting spermicide best meets the variables of spermatozoan activity.

Lanesta Gel, "...found to immobilize human spermatozoa in one-third to one-eighth the time required by five of the leading contraceptive products currently available . . ."* thus provides the *extra* margin of assurance in conception control. The accelerated action of Lanesta Gel—it kills sperm in minutes instead of hours—may well mean the difference between success and failure.

*Berberian, D. A., and Slighter, R. G.: J.A.M.A. 168:2257 (Dec. 27) 1958.

In Lanesta Gel 7-chloro-4-indanol, a new, effective, nonirritating, nonallergenic spermicide produces immediate immobilization of spermatozoa in dilution of up to 1:4,000. Spermicidal action is greatly accel-

erated by the addition of 10% NaCl in ionic form. Ricinoleic acid facilitates the rapid inactivation and immobilization of spermatozoa and sodium lauryl sulfate acts as a dispersing agent and spermicidal detergent.

Lanesta Gel with a diaphragm provides one of the most effective means of conception control. However, whether used with or without a diaphragm, the patient and you, doctor, can be certain that Lanesta Gel provides faster spermicidal action—plus essential diffusion and retention of the spermicidal agents in a position where they can act upon the spermatozoa.



new Lanesta® Gel

Supplied: Lanesta Exquiset . . . with diaphragm of prescribed size and type; universal introducer; Lanesta Gel, 3 oz. tube, with easy clean applicator, in an attractive purse. Lanesta Gel, 3 oz. tube with applicator; 3 oz. refill tube—available at all pharmacies.

Manufactured by Esta Medical Laboratories, Inc., Alliance, Ohio Distributed by GEORGE A. BREON & CO., New York 18, N. Y.

**A product
of Lanteen®
research**

is the Consolidated Datalab division, but re-activation of the B-70 program would aid considerably. Acquisitions are being actively sought, and consideration is being given to the acquisition or establishment of manufacturing facilities within the Common Market area. Liberalization of the \$0.10 quarterly dividend

is unlikely in the near future, but there is a good chance that a 2%-2½% stock dividend will be paid this year. *Representing a progressive company with good products in a growing field, this stock has appeal for long-term capital gains.*

CHANGE IN MARKET POSITION

CALIFORNIA ELECTRIC POWER—Operating in a region marked by rapid population growth, this electric utility should continue to experience a good rate of increase in sales and revenues for some time ahead. During the past decade, its service area had a population growth of 78%, as compared with 48% for California as a whole. However, prospects for higher earnings over the near future are not particularly promising because of rising costs and higher fixed charges. Second-half results will be affected by the 4½% wage increase granted last June.

Earnings were \$1.08 a share for the 12 months ended June 30, 1960, but profits may be in a down-trend for a temporary period ahead. This, however, represents no threat to the \$0.84 annual dividend rate. *Stock, on the American Stock Exchange, is selling rather high relative to prospective earnings and to other California electric utilities, and therefore no longer seems attractive for new buying. It can continue to be held for its good return from the partially tax-free dividend. The Federal income tax exemption in 1959 was approximately 62%.*



Questions on investment may be addressed to this column in care of MEDICAL TIMES. Those of general interest will be answered in the column. It will be understood that no questions can be answered by mail.

● *Is there any advantage in buying listed stocks rather than unlisted ones?*

A stock that is listed on the N. Y. Stock Exchange has met certain minimum requirements on volume of sales and extent of public ownership. Some companies whose common stocks are unlisted could meet these requirements. In other words, among all the unlisted

stocks there are many of excellent quality, with uninterrupted dividend records over many years, just as there are many relatively unseasoned issues of newer companies. Whether you buy "on the big board" or "over-the-counter" there is the same need to get as much information as possible about what you are buying. And if you are the type of investor who needs to know what his stocks are selling for every day, you might be happier with a listed stock, since the bid and asked quotations for unlisted stocks are not a record of sales at the quoted prices.



why use nose drops?

*'SUDAFED' acts systemically to relieve
stuffy noses . . . and dilate the bronchi.*

'SUDAFED'[®]
Pseudoephedrine Hydrochloride brand

○ ○ ○ ○ ○ ○ ○ **TABLETS** ○ ○ ○ ○ ○



and **SYRUP**

for nasal and respiratory decongestion

- Quick relief — 15 to 30 minutes
- Gentle, prolonged action — 4 to 6 hours
- Seldom causes central stimulation

Dosage: adults—60 mg., 3 or 4 times daily
children (4 mos. to 6 yrs.)—30 mg., 3 or 4 times daily
infants up to 4 mos. of age—15 mg., 3 or 4 times daily

Supply: 'SUDAFED' brand Pseudoephedrine Hydrochloride

Tablets—30 mg. sugar-coated, 60 mg. scored

Syrup—30 mg. per 5 cc. teaspoonful

Precaution: Although pseudoephedrine causes
virtually no pressor effect in normotensive patients,
it should be used with caution in hypertensives.

Complete literature available on request.



BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York



As tourism continues to boom throughout the Caribbean, relatively unspoiled areas become fewer and fewer. The easy West Indian way of life, however, can still be found on some of the smaller islands.



LIFE IN THE INDIES

This is not an article about big brassy resorts. Its about the lesser known islands of the Caribbean where the old West Indian way of life still prevails and the red-roofed picturebook towns, built centuries ago, haven't changed much, if any. Business is conducted at an unhurried pace and shopping is leisurely.

On these smaller Caribbeas you live close to the sounds and sights of nature, and without sacrificing comfort. Hotels stand in spacious grounds, often close to the sea, and nearby you'll find sandy coves where only seagulls break the silence.

On Antigua, an easy day's flight from New York or Miami, you hear the plaintive call of turtle doves and the gentle bleating of baby goats. Early in the morning a sly mongoose sneaks across the lawn. At breakfast on the terrace, a small whirlwind of black birds with red or yellow breasts swirls over the marmalade bowl on your table.

You'll find similar scenes in Barbados, only 90 minutes farther south by plane, and in Martinique, where the sweet two-note melody of singing frogs begins just after sunset.

Antigua (pronounced Anteeegah) is more British than Barbados, which has been catering to tourists on a small scale for years. Antigua's magnificent harbors served as the main British naval base in the Caribbean for more than 150 years. At its English Harbor is Nelson's Dockyard, an impressive showpiece of 18th century English history.

The island's three best hotels are small, but all are within sound of the surf. By Miami standards, rates are very low.

You leave Antigua with the memory of rolling fields of sugar cane being harvested by machete-swinging Negroes, of tiny trains loaded with the sweet stalks for the sugar factory, of breathtaking deep blue bays seen across pea-green valleys and of gracious 18th century great-houses, weathered a soft lavender-gray, and symmetrical stone windmill towers.

From Antigua, visitors may explore, in one-day excursions, the smaller islands of Montserrat, Nevis and St. Kitts—all British. They are reached in 20 to 35 minutes.

Visitors with more time may charter a sailing yacht for \$29 to \$38 a day per person and cruise from Antigua south to Guadeloupe, the Isles des Saint, Dominica and Martinique.



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WELL TOLERATED • OBVIATES NEED FOR X-RAY EPILATION
• USUALLY CLEARS SCALP RINGWORM WITHIN 4 TO 6 WEEKS

Dosage: Adults—250 mg. q.i.d. or 500 mg. b.i.d. Children—According to weight,
250 mg. to 1.0 Gm. daily, in divided doses.

Supplied: new 500 mg. scored yellow tablets, bottles of 20 and 100; and
250 mg. scored aquamarine tablets, bottles of 16 and 100.

*Newcomer, V. D., et al.: A.M.A. J. Dis. Child. 99:585, 1960.

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Tinea capitis,
before
GRiFULVIN.
Microscopic
and Wood's
light
examinations
help
differentiate
this infection
from non-
ringworm
disorders.



After 5 weeks'
treatment with
GRiFULVIN.
(Photo taken
1½ months
after discon-
tinuance of
medication.)





Bahamas News Bureau Photo

Martinique is a lush, mountainous island which enchanted Gauguin and Lafcadio Hearn. Lately it's become a magnet to American artists, writers, students and travelers who wouldn't pay a penny to visit a plush resort.

Sea and Mountains

In Fort de France, the Lido is a charming hotel in the old West Indian tradition. It rambles across a seaside cliff and is reached by winding staircases and paths half hidden in a bower of bougainvillea. Rooms are huge with overhead fans and plenty of windows. The breeze-swept dining room is open on three sides and there's an outdoor terrace with tables and chairs set in arbors.

Fort de France is a maze of narrow, balconied streets radiating from the harborside park called La Savane. Its residential suburbs are scattered across the slopes of the mountains.

You can explore St. Pierre, once a bigger city than Fort de France until 4,700-foot Mt. Pelee erupted and blasted it out of existence in 1902; Trois Islets, birthplace of Josephine Tascher de la Pagerie (the girl who became Empress of France as the wife of Napoleon

Bonaparte) and a host of lovely beaches.

Tobago still has the wooded mountains, the lush coconut groves and endless lonely beaches Daniel Defoe wrote about in 1719 as the setting of Robinson Crusoe's adventures. It also has six first class hotels, and Buccoo Reef, which encloses one of the most spectacular marine gardens in the Caribbean.

Barbados—at the end of the Lesser Antilles chain—is in a state of transition, from a strictly sugar bowl isle to a small, popular sun-and-surf resort. The coasts of this 21-mile-long by 14-mile-wide island are almost one continuous beach. Its hotels offer a lot of luxury at unbelievable bargain prices. For \$10 to \$18 per person Americans can stay at seaside hotels ranging from simple comfort to the last word in luxury. These rates cover all meals and tea in the afternoon, and a ten per cent service charge covers tips.

Barbados, despite its increasing influx of visitors, is still quaint in aspect, customs and speech. Chances are, however, that the yesteryear atmosphere of Barbados and the other small islands may be just a memory within the next few years.



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...with disintegration time as prompt as ever

improved **Natalins® tablets**

comprehensive vitamin-mineral support,
pre- and post-natal

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Developed and perfected by Mead Johnson research, the new super-smooth coating of Natalins tablets makes them even easier to swallow, even more appealing to your OB patients. And there is no interference with disintegration time—so important for assured vitamin protection. Natalins tablets provide generous amounts of iron, calcium, vitamin C, plus eight other significant vitamins for the increased needs of multiparas.

Convenient one-tablet-a-day dosage...attractive new amber bottle

...if you prefer a less comprehensive formulation

Natalins® Basic tablets...four basic vitamins and minerals



Mead Johnson
Symbol of service in medicine

[illegible]



Elmer Jenkins, director of the auto association's National Touring Department and origi-

The AAA oval does not appear in front of



THEY'RE delightful company on any trip. The Rolls-Royce engines in BOAC's Intercontinental 707 make it the fastest of all the big jets. And look how little it costs to travel with them in the Fall! \$323*—that's the new 17-day excursion fare, Round-Trip Economy Class to Glasgow. \$350* to London. And Fall is Europe's own season. What a time they have! Why not join them!

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TRAVEL

European eating and lodging spots which have undergone inspection. The association's 600-page "Travel Guide to Europe" is the authority for some 600 restaurants and 4,000 hotels, motels and inns which are on the "beat" of field men who cover the continent from top to bottom. Foreign inspections recently have been extended to the Middle East, Asia and the Orient and recommendations in those areas will appear in print early next year.

"Private eyes" of AAA's field reporting system—in operation since 1937—average thirty years of age. They undergo a thorough eight-week training period, but only one out of five applicants lasts through the initial course. Veteran of the group is David Harley, who has been with AAA since inception of the field system and currently covers the west coast of Florida.

"It's a good thing that I like to travel," says Harley, who annually drives about 25,000 miles. "I could retire handsomely if I had a dollar for every time I've looked into a closet, picked up a skillet, blown on a lamp shade, poked behind a mirror, checked the plumbing, and sniffed inside a refrigerator!"

Motel managers frequently never know when a AAA field man is approaching the premises, nor do the inspectors always identify themselves in a restaurant until they have eaten a

meal. In heavily-congested resort areas, some of the Triple-A watchdogs will sample five or six meals daily, pay their check and then, announcing themselves, inspect the kitchen. Most of the reporters keep a careful eye on their diets; a rookie once gained thirty pounds in three weeks.

From Modest to Plush

AAA's Elmer Jenkins takes pride in the wide range of listings in the organization's nine regional tour books.

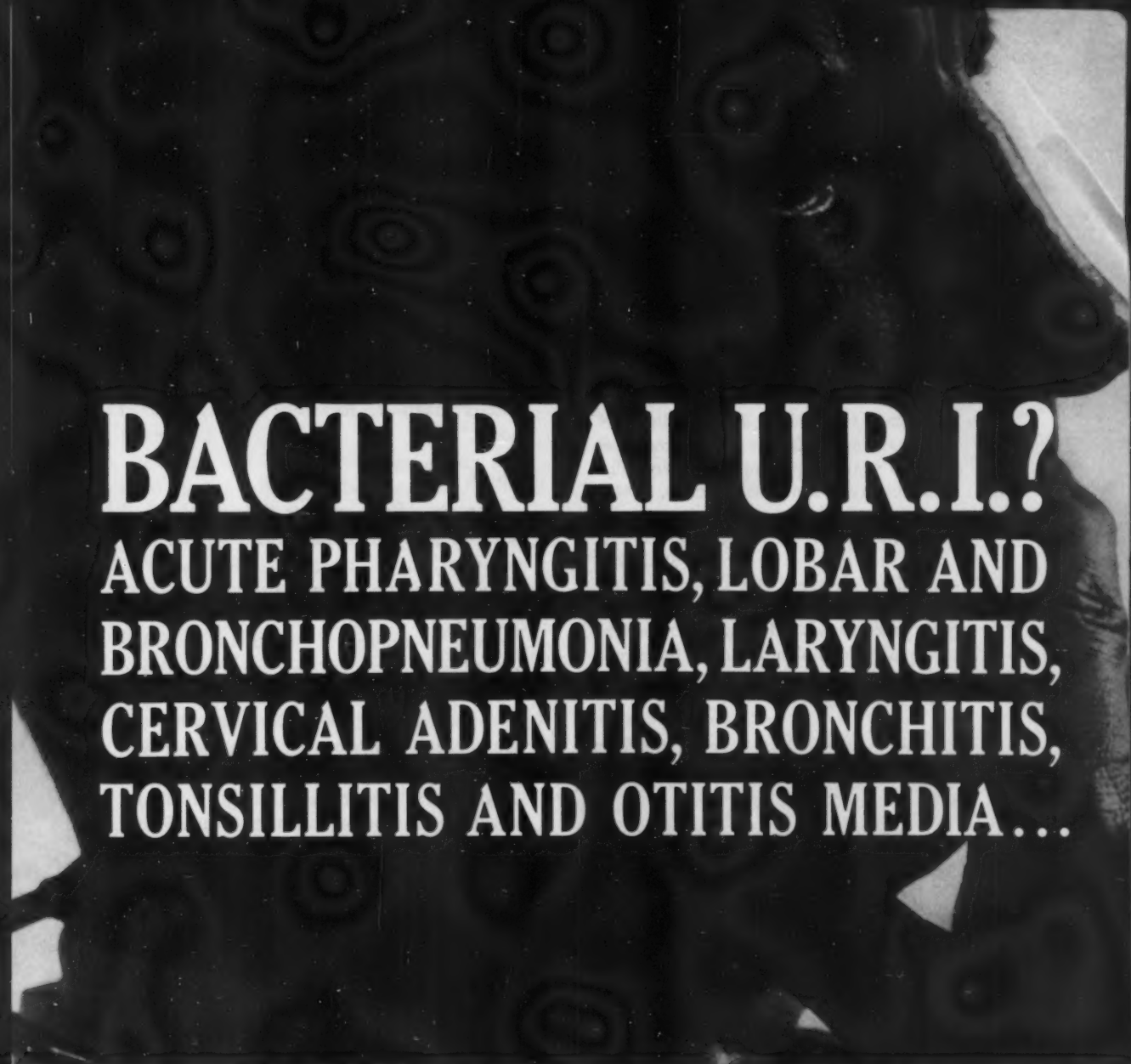
"With a motor club membership approaching the 7,000,000 mark," Jenkins says, "we know that we serve people with a wide range of interests, income and tastes. For these reasons, we include all types of establishments—from the modest to the plush—and each must meet standards set through long years of experience. We must give the AAA member a choice for his pocketbook, but we will not compromise on quality, cleanliness or service."

Same Rules Abroad

Extension of AAA inspections abroad is relatively new, having been conducted only since the end of World War II when Americans began traveling to Europe in increasing numbers. This year AAA's European travel guide will account for some 80,000 of the total print run of 5,500,000 tour books for distribution to members of affiliated motor clubs. In listing foreign establishments, the same rules apply



Inspections abroad have been conducted since the end of World War II. Here an AAA field reporter inspects the main kitchen of the well-known Peninsula hotel in Hong Kong.



BACTERIAL U.R.I.?

ACUTE PHARYNGITIS, LOBAR AND
BRONCHOPNEUMONIA, LARYNGITIS,
CERVICAL ADENITIS, BRONCHITIS,
TONSILLITIS AND OTITIS MEDIA...

**BEFORE YOU WRITE FOR AN ANTIBIOTIC CONSIDER
THE 'PLUSES' OF NEW ALPEN FOR YOUR PATIENTS!**

Alpen is more active against clinical isolates of penicillin-resistant staphylococci than older penicillins.¹ Alpen is indicated for acute and chronic streptococcal infections. Alpen is rapidly absorbed to produce high blood levels. Alpen has greater freedom from the G.I. sequelae of the broad spectrum -mycins.

ALPEN

See ALPEN Statement of Directions for complete details.

1. Morigi, E. M. E.; Wheatley, W. B., and Albright, H.: Antibiotics Annual 1959-60, N.Y., Antibiotic, Inc., 1960, 131. ALPENTM potassium phenethicillin

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protection
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ELDEC®

mineral-vitamin-hormone supplement

KAPSEALS®

ELDEC Kapseals help offset the disorders of advancing age for the patient now in his middle years. Supplying numerous valuable dietary and metabolic factors, ELDEC Kapseals provide the patient with comprehensive physiologic supplementation to meet the threat of nutritional and hormonal deficiencies... aid him in meeting the problem of declining health during the years ahead. With ELDEC kapseals, the patient can plan ahead for tomorrow with a greater assurance of good health and well-being.



PARKE-DAVIS

PARKE, DAVIS & COMPANY
Detroit 32, Michigan

TRAVEL

and all are checked from the standpoint of what the most particular tourist would demand away from home and on a foreign shore.

Says J. D. Ryan, head of AAA's International Travel Department:

"We have a grave responsibility to the American tourist who, when he travels abroad, probably is more conscious of his health and comfort than he might be when closer to home."

Check List

How should you evaluate motels, hotels and restaurants when you hit the highway on your next trip?

Take these tips from seasoned AAA field men:

Check the neatness of grounds and buildings.

Check for adequate fire exits. AAA insists that buildings of three or more stories have at least two exits per floor plus a sprinkler system or alarm system. Space heaters should meet all safety specifications.

For convenience, motel driveways should be wide enough to accommodate two cars. Paved driveways are preferable.

Motel entrances, parking areas and walkways should have adequate all-night illumination.

Good maintenance and general cleanliness inside and out are essential. (Many establishments checked by AAA fail to qualify for these two important considerations.)

Doors should have a lock device to prevent opening from the outside to assure guest privacy and security.

Furniture need not be lavish, but it should be of good quality and tasteful design. Rooms should include adequate luggage facilities, good illumination, shades, drapes or blinds in good working order, at least one comfortable chair, adequate clothes hanging facilities, adequate free floor space.

Bathrooms, in addition to basic fixtures, should above all be clean, have a door separating the bathroom from the bedroom, at least one large bath towel and one face towel

for each occupant, efficient ventilation, a sanitary bathmat, a rubber mat or other safeguard in tubs. Tile baths are preferable.

Restaurants must offer a reasonable variety of good foods; except in the case of outstanding specialty houses, those restaurants with limited menus usually are not selected for listing by AAA.

Cleanliness—in the dining rooms, kitchen and storage areas—is most essential!

Food preparation area must be well-ventilated; there should be a separate salad preparation area.

Efficient and clean dishwashing system and good garbage disposal facilities are highly important.

There should be efficient supervision throughout the establishment, and prompt, cheerful, efficient service.

Serves Two Masters

The check list could go on and on. Elmer Jenkins often has said, "Every tourist has his own ideas as to what constitutes the acceptable lodging or dining place. We have to evaluate all these establishments in the light of the tourists' many needs and desires. For our field men, it's a real adventure into frustration—he serves the traveler as well as the host, but between this crossfire, we think he does a pretty good job."

So, wherever you see the AAA emblem on your highway journey—one of the roving forty-six has eaten there or slept there. He could be right next door.

TO OUR READERS: You are avid travelers—as statistics show—taking trips for pleasure and relaxation as well as to attend professional meetings in this country and abroad. In addition, you often prescribe travel for your patients. Thus, the purpose of this department is to give you concise, practical information about one of your strong interests—travel. As a special service, this section will carry each month a calendar of important forthcoming national and international medical meetings.

**help make
the years of maturity
years of health...**

ELDEC®

comprehensive physiologic supplement

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Physiologic Prophylaxis

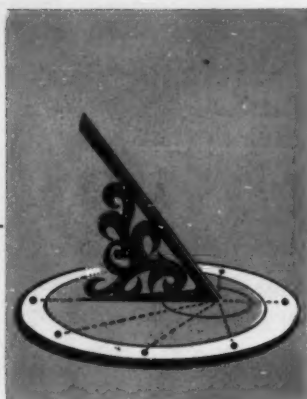
- *10 important vitamins plus minerals* to help maintain cellular function and to correct deficiencies
- *protein improvement factors* to help compensate for poor food selection
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Packaging: ELDEC Kapseals are available in bottles of 100.



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Calendar of Meetings

A listing of important national and international conferences

OCTOBER

San Antonio, Texas. Medical and Biological Aspects of the Energies of Space Symposium, Oct. 24-26. *Contact:* Mr. Jack Harmon, Southwest Research Institute, P.O. Box 2296, San Antonio 6, Tex.

Detroit, Michigan. International Symposium on the Etiology of Myocardial Infarction, Nov. 16-18. *Contact:* Dr. Thomas N. James, Henry Ford Hospital, Detroit 2, Mich.

Ixtapan, Mexico. Symposium on Rheumatic Diseases, Oct. 19-23. *Contact:* General Tours, Inc., 595 Madison Ave., New York 22, N. Y.

Santiago, Chile. Pan American Congress of Gastroenterology, Oct. 23-29. *Contact:* Dr. Ricardo Katz, c/o Servicio de Medicina, Hospital del Salvador, Casilla 70-D, Santiago, Chile.

Geneva, Switzerland. Symposium on Diagnosis and Treatment of Acute Radiation Sickness, Oct. 17-22. *Contact:* World Health Organization, Palais des Nations, Geneva, Switzerland.

Philadelphia, Pa. Academy of Psychosomatic Medicine, Oct. 13-15. *Contact:* Dr. Bertram B. Moss, 55 E. Washington, Chicago 22, Ill.

New Orleans, La. American Association of Medical Clinics, Oct. 6-8. *Contact:* Dr. Joseph B. Davis, 134 N. Washington St., Marion, Ind.

Chicago, Ill. American Association of Poison Control Centers, Oct. 18. *Contact:* Dr. Harold C. Shirkey, 712 S. 30th St., Birmingham, Ala.

San Francisco, Cal. American College of Surgeons, Clinical Congress, Oct. 10-14. *Contact:* Dr. William E. Adams, 40 E. Erie St., Chicago 11, Ill.

NOVEMBER

Nassau, Bahamas. Bahamas Medical Conference, Nov. 25-Dec. 16. *Contact:* Mr. Irvin M. Wechsler, P.O. Box 1454, Nassau, Bahamas.

Santiago, Chile. Latin American Congress of Neurology, Nov. 27-Dec. 1. *Contact:* Prof. Rodolfo Nunez, Almirante Montt 485, Dept. 11, Santiago, Chile.

Las Vegas, Nev. Pacific Coast Fertility Society, Nov. 10-13. *Contact:* Dr. Anah C. Wineberg, 3120 Webster St., Oakland, Calif.

DECEMBER

Nassau, Bahamas. Bahamas Surgical Conference, Dec. 27-Jan. 14. *Contact:* Mr. Irvin M. Wechsler, P.O. Box 1454, Nassau, Bahamas.

JANUARY, 1961

Nassau, Bahamas. Bahamas Serendipity Conference, Jan. 15-28. *Contact:* Mr. Irvin M. Wechsler, P.O. Box 1454, Nassau, Bahamas.

FEBRUARY

Washington, D.C. American Academy of Allergy, Feb. 6-8. *Contact:* Mr. James O. Kelly, 756 N. Milwaukee St., Milwaukee 2, Wis.

allergy-free
for
months



with a one week course of daily injections

Anergex—1 ml. daily for 6-8 days—usually provides prompt relief that persists for months.

Anergex—a specially prepared botanical extract—is nonspecific in action; it suppresses allergic manifestations *regardless* of the offending allergens. It is not a histamine antagonist, nor does it merely minimize the effects of a single allergen.

Anergex eliminates skin testing, long drawn-out desensitization procedures, and special diets. It has been effective even in patients who failed to respond to other therapeutic measures.

Reports on over 3,000 patients have shown that over 70% derived marked benefit or complete relief following a single short course of Anergex injections. Effective in seasonal and nonseasonal rhinitis (pollens, dust, dander, molds, foods); allergic asthma; asthmatic bronchitis and eczema in children; food sensitivities.

Available: Vials containing 8 ml.—one average treatment course.

WRITE FOR REPRINTS AND LITERATURE

ANERGEX[®]

the new concept for the treatment of allergic diseases

MULFORD COLLOID LABORATORIES



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Patent applied for

extends the usefulness of Vitamin K₁ therapy[†]...

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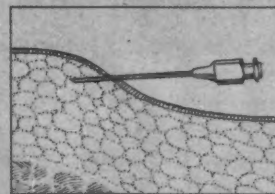
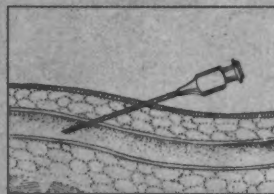
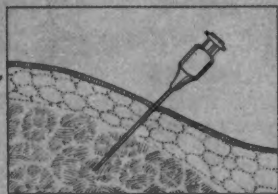
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a clear, stable, aqueous colloidal solution for administration

- intramuscularly
- intravenously
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a dosage form for every Vitamin K indication:

AquaMEPHYTON (for intramuscular, intravenous, subcutaneous administration), 1-cc. ampuls containing 10 mg. MEPHYTON, Vitamin K₁

TABLETS MEPHYTON (for oral administration), 5 mg.

EMULSION MEPHYTON (for intravenous administration only),

1-cc. ampuls containing 10 mg. and 50 mg. per cc.

MEPHYTON[®]

OF MEPHYTON[®], VITAMIN K,

*Vitamin K, "has a more prompt, more potent and more prolonged effect than the vitamin K analogues" **

*Council on Drugs: New and Nonofficial Drugs, Philadelphia, J. B. Lippincott Co., 1960, p. 732

reduces the hazard of hemorrhage due to hypoprothrombinemia in:

- prophylaxis and therapy of hemorrhagic disease of the newborn
- surgery, preoperatively and postoperatively
- anticoagulant-induced prothrombin deficiency
- inadequate absorption of Vitamin K
- biliary tract disease
- prothrombin-depressing drugs such as salicylates and phenylbutazone
- inadequate endogenous production of Vitamin K

For additional information, write Professional Services, Merck Sharp & Dohme, West Point, Pa.



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MODERN THERAPEUTICS

New therapies and significant clinical investigations
abstracted from other journals.

Steroid Treatment of Atopic Eczema

Reports of dermatologists on the use of systemic steroids were not encouraging since it was believed that, upon withdrawal of the drug, a relapse might well leave the patient in worse condition. However, occasional use of the steroids for atopic eczema was considered justifiable. The author decided to use steroid treatment for several extensively disabled patients with atopic eczema. Over a period of four months to four and one-half years, 26 patients with severe and intractable atopic eczema were treated with steroids systemically. Prednisolone was used for 13 patients, dexamethasone for six, and a combination of steroids for seven persons. The results of treatment with dexamethasone and prednisolone were the same. Since the prednisolone is cheaper, there seems to be no reason to use the newer drug, especially as the dosage with dexamethasone has to be somewhat higher. As a result of treatment, good control was obtained in 19 patients, and fair control in five. One of the most striking features has been the change in personality of the patients who have altered from miserable, tense depressives to extraverted, cheerful individuals. Serious side-effects have not occurred, and in no instance has withdrawal of the drug been necessary. Pregnancy presents a problem. In the case of one woman under treatment, the steroids were withheld until after the twentieth week of pregnancy: a normal child was produced. The administration of steroids

throughout the pregnancy is a risk that should be avoided.

I. B. SNEDDON, M.D.

Brit. J. of Dermat. (1960), Vol. 72, No. 1, P. 1

Besnier's Eczema

Due to its chronic and disabling character, and to its prevalence, Besnier's eczema is a disease of considerable importance. The advent of the steroid drugs has made available a new field of therapy for its treatment. The present study was made, for the most part, with the use of prednisolone, given to a group of 23 patients who were long-time sufferers with Besnier's eczema. The adult dosage was 5 to 15 mgms. daily: the average duration of treatment was approximately one year. Eighteen patients showed definite improvement; the extent of pruritus was modified, also, a number of persons reported that the ability to sleep was greatly improved. Several side-effects were encountered. Gastrointestinal disturbance was alleviated by reducing or withdrawing the drug. Four patients developed intercurrent infections. Three instances of acne vulgaris may or may not have resulted from the drug, and disturbances in two patients after discontinuing treatment may have been caused by the steroid. At all events, the possibility of untoward effects during or following administration of these drugs is factual, and patients should be ob-

Continued on page 180a



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for gastrointestinal disorders, specify

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References:

(1) Winkelstein, A.: *Am. J. Gastroenterol.* 27:45-52 (Jan.) 1957. (2) Brown, C. H.: *Am. Pract. & Digest Treat.* 9:405-411 (March) 1958. (3) Winkelstein, A., and Schweiger, E.: *J.A.M.A.* 160:1111-1115 (March 31) 1956.



Mead Johnson

Symbol of service in medicine

served carefully. Relapses after cessation of therapy, also, are a distinct possibility. A clear skin may require a continuance of the corticosteroid therapy. However, this group of drugs is becoming well established as a method of treating Besnier's eczema.

IAN C. LAMONT, M.D.

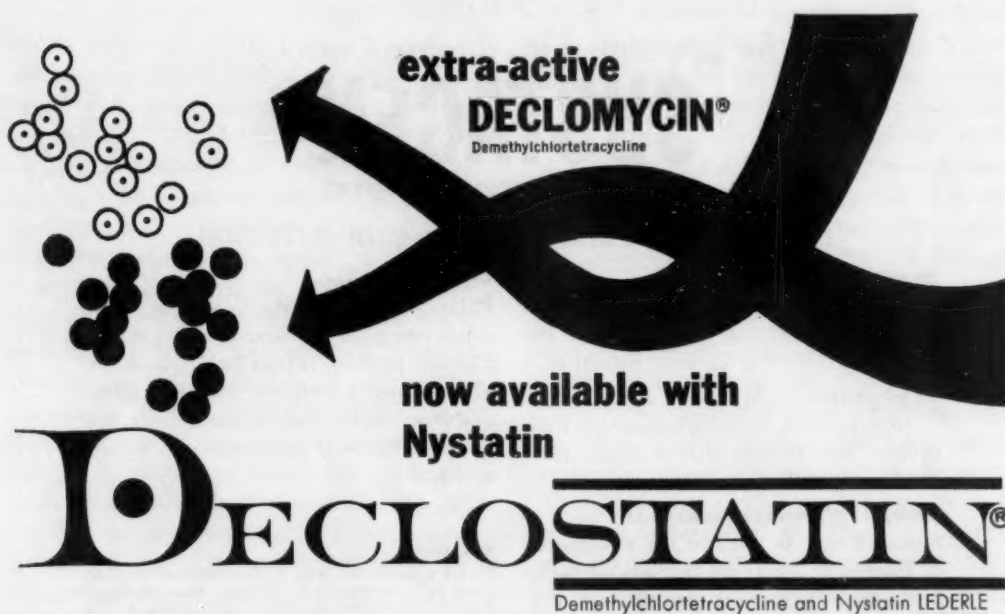
Brit. J. of Dermat. (1960), Vol. 72, No. 1, P. 7

Treatment of Abdominal Distention

It has been estimated that of 50 percent of the patients seen by the gastroenterologist who have functional disorders of the gastrointestinal tract, the symptoms most commonly encountered are abdominal distention, bloating, and excessive gas. Symptoms vary from mild discomfort to severe cramping and sharp pain. The causes of these conditions and their treatment have long created a difficult problem.

Numerous examinations pointed to the presence of air bubbles surrounded by mucus, and it was believed that if these bubbles could be broken up, elimination of gas would be facilitated. The silicones have been employed in industry for the purpose of defoaming certain liquids, and their application to medical problems seemed a reasonable proceeding. The silicone compounds in general are polymeric materials with the basic chain consisting of silicone and oxygen atoms. They are physiologically inert; have low surface tension, and spread easily; are repellent to water and are not attacked by enzymes, and they do not support bacterial growth. One hundred seventeen patients were treated for periods varying from four weeks to two and one-half years. None of these persons had obtained relief from routine therapy. Of the group, 72 percent had

Continued on page 182a




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Demethylchlortetracycline

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Nystatin

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excellent or good results on a regimen of one 40-mg. tablet of Mylicon after meals and at bedtime. No side-effects were experienced, and there were no changes in the blood or urine.

A. ALFRED RIDER, M.D.

Am. Pract. (1960), Vol. 11, No. 1, P. 52

Therapy of Angina Pectoris

Conflicting opinions on the use of the xanthines caused the author to conduct his own investigation of the efficacy of theophylline (Elixophyllin). Thirty ambulatory patients with established patterns of anginal episodes were selected. All had been benefited by the administration of nitroglycerin. The elixir of theophylline was given orally in doses of three tablespoonfuls three times daily to half of the group for a period of two weeks; the other member of the group took a placebo. During an eight-week period, the patients alternated between Elixophyllin and a placebo, changing every two weeks. As a result of the Elixophyllin therapy, 76 percent of the patient-days were recorded as associated with "no-pain" or less pain," and in 16 of the patients, the response

was "good" or "excellent." The present study has shown that a hydro-alcoholic solution of theophylline was strikingly effective not only in the control of symptoms, but in its modifying action on the electrocardiographic response to standard exercise. The efficacy of this preparation is based on the rapid absorption and attainment of high blood levels made possible by the vehicle employed. Xanthine derivatives, both by the intravenous and oral route, should be reinstated as valuable agents in the treatment of angina pectoris and other coronary disease states. At present, the most effective preparation for oral administration is a hydro-alcoholic solution of theophylline, but other derivatives and preparations of the xanthine group should be fully explored to permit their increased use.

HENRY I. RUSSEK, M.D.

Am. J. of the Med. Sc. (1960), Vol. 239, No. 2, P. 187

Hypnotic Effect of W583

W583, a new compound of the propanediol series, has pronounced hypnotic activity, and is nontoxic. Twenty-five patients were selected from the outpatient clinic of Hahnemann Hospital for a study of the new drug: 18 returned for follow-up. Identical capsules were administered for specific periods: two contained placebos; one contained 200 mgms. of W583, and one contained 400 mgms. of the same drug. Each was given for one week or more until clinical effectiveness was established. The hypnotic effect was evaluated clinically by the time of onset, depth, and duration of the patient's sleep, as obtained by weekly interviews with the patients. In all, 82 patient-weeks of therapy were observed. Reports on the 200-mg. doses of W583 were of an effect more pronounced than from the placebos. Of the 400-mg. dosage, reports were of a definite hypnotic effect, there was a more relaxed sleep for longer periods. The onset of the hypnotic effect was noted as varying from one to six hours after

Continued on page 184a

MEDICAL TEASERS

Answer to puzzle on page 47a

V	I	R	U	S		H	O	G		P	A	P	E	R
A	T	O	L	E		O	R	A		E	L	E	M	I
L	I	V	E	R		G	A	S	T	R	I	T	I	S
E	S	E		P	E	A	L		R	T		A	L	E
				L	I	M	N		M	E	A	S	L	E
D	O	S	A	G	E		T	U	M	I	D			
A	L	A	M	O		C	O	L	O	N		S	O	N
F	I	N	E		B	O	N	E	R		S	E	M	I
T	O	E		P	A	R	I	S		O	P	T	I	C
				I	L	I	A	C		O	P	I	A	T
I	N	S	T	A	L		S	U	E	T				
N	E	Y		N	E		C	A	R	R		E	L	M
G	E	N	O	T	I	P	E	S		A	P	N	E	A
O	L	O	N	A		E	L	I		T	O	T	A	L
T	E	D	E	R		W	E	N		E	X	E	R	T

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Clinical reports indicate:

- effective in half the dosage required with meprobamate
- significantly less drowsiness than with meprobamate, phenothiazines, or the psychosedatives
- does not impair intellect, skilled performance, or normal behavior in recommended dosage
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STRIATRAN is indicated in anxiety and tension, occurring alone or in association with a variety of clinical conditions.

Usual Adult Dosage: One tablet three times daily, preferably just before meals. In insomnia due to emotional tension, an additional tablet at bedtime usually affords sufficient relaxation to permit natural sleep.

Supply: 200-mg. tablets, coated pink, bottles of 100.

While no absolute contraindications have been found for STRIATRAN in the recommended dosage, the usual precautions and careful supervision required with all new and potent drugs should, of course, be observed.

Additional information available to physicians on request; write Professional Services, Merck Sharp & Dohme, West Point, Pa.



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oral administration. Routine blood counts, urinalysis, and liver function tests were normal in all instances. The sedative-hypnotic property of W583 was useful in several restless patients when it was taken during the day, suggesting that the drug could be used advantageously for restless patients who are in danger of barbiturate addiction. Also, the slow onset of action with W583 makes this drug suitable for persons who are able to fall asleep initially, but who are wakeful during the night.

TIBOR BODI, M.D., et al.
Am. J. of the Med. Sc. (1960), Vol. 239, No. 2, P. 207

Rheumatic Disorders Treated with G-27202

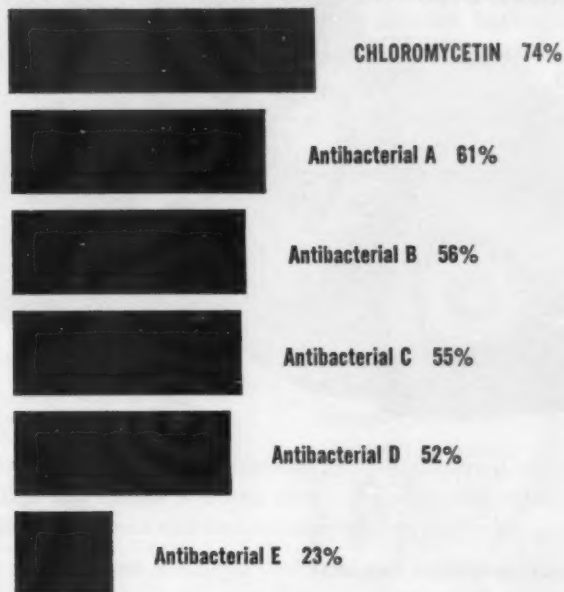
In a search for antirheumatic agents free from the complications associated with steroid therapy, a study was undertaken of G-27202, Metabolite I of phenylbutazone. It was known that the physico-chemical properties of Metabolite I and phenylbutazone are similar. During a one-year period, 353 patients were treated with G-27202. The daily dose was 400 mgms. for the first week, 300 mgms. for the second week, and 200 mgms. thereafter. More than half of the patients suffering from *rheumatoid arthritis* considered the treatment with G-27202 worthwhile and 40 percent had marked relief. Sixty percent of 89 patients with spinal or peripheral *osteoarthritis* responded well to treatment. In *ankylosing spondylitis*, the ninety percent response was surprisingly good, as was the response in cases of *gouty arthritis*. Only half of the patients with *subacromial bursitis* responded favorably, a disappointing result. Response of allied disorders was not significant since their number was too small. It was found that relief of pain and stiffness usually occurred within one to three days. If the response was poor, the drug was withdrawn without untoward effect after seven to ten days. Less than one-third of the patients experienced side-effects, all of which were minor in nature.

Continued on page 187a

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*Adapted from Goodier, T. E. W., & Parry, W. R.: *Lancet* 1:356, 1959.

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CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

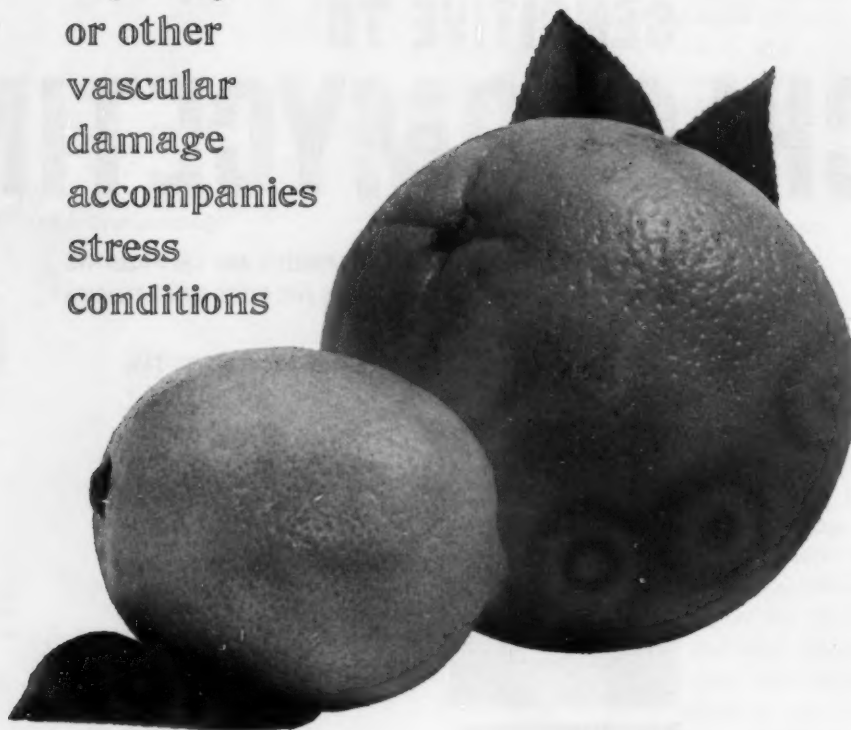
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Maintenance of Capillary Integrity

Incidence of impaired capillary function is more frequent than previously recognized. Many publications indicate the frequency of increased capillary weakness ranges from 16% to as high as 80% of patients examined (1-4).

Reports show older people have a high incidence of capillary fragility (6). In a group of 111 patients, capillary weakness was noted to be greatest in the fifth and sixth decades (5).

Hypertensives (7, 8, 9) and those with chronic diseases such as arteriosclerosis, diabetes and rheumatoid arthritis, have shown varying degrees of capillary involvement. Hemorrhagic conditions of the brain and heart have shown localized injury in the capillary (10, 11).

Capillary fragility has been shown to be associated with many bacterial, viral and inflammatory diseases (12-23).

Various bioflavonoid materials have been evaluated for their effect upon the capillary. Degree of fragility has been determined by numerous procedures (24-30).

The therapeutic rationale of combining *Hesperidin* or other *citrus bioflavonoids* with ascorbic acid or other therapeutic agents is based on the premise that capillary weakness may be a contributing factor to the disease state and that capillary integrity should be maintained. *Citrus bioflavonoids* in conjunction with ascorbic acid appear to enhance the efficacy of other therapy, and help control such factors as infection, stress and nutritional deficiency even in cases not showing capillary weakness.

NOTE: For bibliography (B-701) write Sunkist Growers, Pharmaceutical Division, 720 E. Sunkist Street, Ontario, California.

MODERN THERAPEUTICS—Continued

In these cases, close clinical observation enabled prompt withdrawal of the drug. Patients with histories of peptic ulcer, drug hypersensitivity or cardiac disease should be observed carefully.

WALLACE GRAHAM, M.D.

Canad. Med. Assn. J. (1960), Vol. 82, No. 20, P. 1005

Chymotrypsin Therapy for Pelvic Inflammatory Disease

Pelvic inflammatory disease, frequently based on gonorrhea, was a serious and prolonged problem before the era of antibiotics. Prior to the availability of chemotherapy, the management of these cases depended upon hot baths, douches, aspirin, and surgery. Now, a most efficient weapon has been placed in the hands of the clinician. Of the anti-inflammatory agents, chymotrypsin (Chymar Aqueous) has been found to be markedly effective: it is preferred to trypsin as it has no clotting action on the blood, and is less toxic when administered rapidly. The efficacy of this agent for treating inflammatory pelvic conditions has been pointed out.

At the Gynecologic Clinic at the Cook County Hospital, 219 patients received a total of 1,586 injections of an aqueous solution of chymotrypsin in sodium chloride, representing a proteolytic activity of 5,000 units per cubic centimeter. All patients received 0.5 cc. daily for seven days except Saturdays and Sundays. Clinical improvement was based on clinical observation. The commonest sign was a marked lessening of pain. Also, pelvic examination revealed a considerable diminution of thickening, fixation and tenderness in the involved adnexa. Of the group treated, 85 percent were markedly improved. The remainder of the group were patients whose conditions were too far advanced to respond to any treatment. From the 1,586 injections given there were only six untoward reactions, and these were mild, consisting of pruritus and urticaria. The authors

Continued on page 190a

Lifts depression...



You see an improvement within a few days
Thanks to your prompt treatment and the smooth action of Deprol, her depression is relieved and her anxiety and tension calmed — *often in a few days*. She eats well, sleeps well and soon returns to her normal activities.

as it calms anxiety!

Smooth, balanced action lifts depression as it calms anxiety... rapidly and safely

Balances the mood—no "seesaw" effect of amphetamine-barbiturates and energizers. While amphetamines and energizers may stimulate the patient—they often aggravate anxiety and tension.

And although amphetamine-barbiturate combinations may counteract excessive stimulation—they often deepen depression.

In contrast to such "seesaw" effects, Deprol's smooth, *balanced* action lifts depression as it calms anxiety—both at the same time.

Acts swiftly—the patient often feels better, sleeps better, within a few days. Unlike the delayed action of most other antidepressant drugs, which may take two to six weeks to bring results, Deprol relieves the patient quickly—often within a few days. Thus, the expense to the patient of long-term drug therapy can be avoided.

Acts safely—no danger of liver damage. Deprol does not produce liver damage, hypotension, psychotic reactions or changes in sexual function—frequently reported with other antidepressant drugs.

Bibliography (13 clinical studies, 858 patients): 1. Alexander, L. (35 patients): Chemotherapy of depression—Use of meprobamate combined with benactyzine (2-diethylaminoethyl benzilate) hydrochloride. J.A.M.A. 166:1019, March 1, 1958. 2. Bateman, J. C. and Carlton, H. N. (50 patients): Meprobamate and benactyzine hydrochloride (Deprol) as adjunctive therapy for patients with advanced cancer. Antibiotic Med. & Clin. Therapy 6:648, Nov. 1959. 3. Beerman, H. M. (44 patients): The treatment of depression with meprobamate and benactyzine hydrochloride. Western Med. 1:10, March 1960. 4. Bell, J. L., Tauber, H., Santy, A. and Pulito, F. (77 patients): Treatment of depressive states in office practice. Dis. Nerv. System 20:263, June 1959. 5. Breitner, C. (31 patients): On mental depressions. Dis. Nerv. System 20:142, (Section Two), May 1959. 6. Gordon, P. E. (50 patients): Deprol in the treatment of depression. Dis. Nerv. System 21:215, April 1960. 7. Landman, M. E. (50 patients): Clinical trial of a new antidepressive agent. J. M. Soc. New Jersey. In press, 1960. 8. McClure, C. W., Papas, P. N., Speare, G. S., Palmer, E., Slattery, J. J., Konefal, S. H., Henken, B. S., Wood, C. A. and Ceresia, G. B. (128 patients): Treatment of depression—New techniques and therapy. Am. Pract. & Digest Treat. 10:1525, Sept. 1959. 9. Pennington, V. M. (135 patients): Meprobamate-benactyzine (Deprol) in the treatment of chronic brain syndrome, schizophrenia and senility. J. Am. Geriatrics Soc. 7:656, Aug. 1959. 10. Rickels, K. and Ewing, J. H. (35 patients): Deprol in depressive conditions. Dis. Nerv. System 20:364, (Section One), Aug. 1959. 11. Ruchwarger, A. (67 patients): Use of Deprol (meprobamate combined with benactyzine hydrochloride) in the office treatment of depression. M. Ann. District of Columbia 28:438, Aug. 1959. 12. Settel, E. (52 patients): Treatment of depression in the elderly with a meprobamate-benactyzine hydrochloride combination. Antibiotic Med. & Clin. Therapy 7:28, Jan. 1960. 13. Splitter, S. R. (84 patients): Treatment of the anxious patient in general practice. J. Clin. & Exper. Psychopath. In press, April-June 1960.

Dosage: Usual starting dose is 1 tablet q.i.d. When necessary, this dose may be gradually increased up to 3 tablets q.i.d.

Composition: 1 mg. 2-diethylaminoethyl benzilate hydrochloride (benactyzine HCl) and 400 mg. meprobamate.
Supplied: Bottles of 50 light-pink, scored tablets. Write for literature and samples.



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were most favorably impressed with the results of the study, and believe chymotrypsin to be a most satisfactory agent for these inflammatory conditions.

WALTER W. REICH, M.D. and
MITCHELL J. NECHTOW, M.D.
Am. Prac. (1960), Vol. 11, No. 1, P. 45

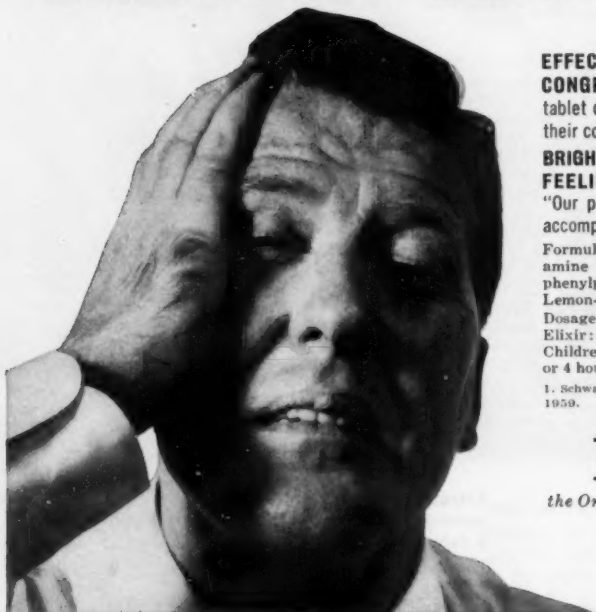
Hydroxyzine in Allergic Disorders

It is recognized that in allergic disorders, physical and psychic stress is a major factor to be overcome if the allergy is to be controlled. Believing that an ataractic agent with antihistaminic properties would provide release from emotional unrest, and counteract the sensitivity of the tissues involved, hydroxyzine (Atarax) was chosen for the authors' study. Fifty patients under standard antiallergic management

were selected. The dosage schedule was 10 to 25 mg. of Atarax three times a day, with 25 to 50 mgms. at bedtime. The duration of therapy varied from two weeks to several months. *Bronchial asthma*: All patients reported greater calmness, were able to sleep better, and led a more normal life. Less antiasthmatic medication was required. *Atopic dermatitis*: All patients were benefited by the treatment. Itching was decreased, and the condition of the skin was improved. *Urticaria* and *Angioedema*. In both chronic and acute cases, results were dramatic: the skin was completely cleared, itching disappeared, and symptoms of recurrence were very mild. *Migraine*: Results were satisfactory: by eliminating the anxiety factor, the patients were kept free of headaches. Results, on the whole, were very satisfactory

Continued on page 192a

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Dosage: Tablets: Adult Dose: One tablet every 8 hours
Elixir: Adult Dose: Two teaspoonfuls every 3 or 4 hours.
Children: Six years and over, one teaspoonful every 3 or 4 hours. Under six years according to age and weight.

¹ Schwartz, T. A., and Shasman, W. H.: *E.E.N.T. Monthly* 38:645, 1959.

NOLAMINE

the Oral Nasal Decongestant

that normalizes the mood

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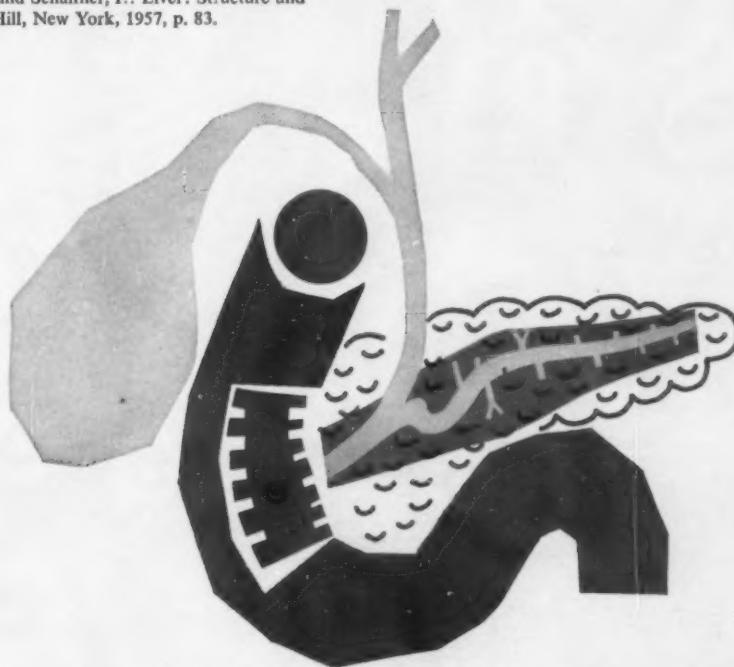
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how does diet affect the production of bile?

High-protein diets produce the greatest bile flow. Fat is a weaker choleretic than protein, and carbohydrates are without choleretic effect.

Source: Popper, H., and Schaffner, F: *Liver: Structure and Function*, McGraw-Hill, New York, 1957, p. 83.



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and when spasmolysis is also needed...

DECHOLIN® WITH BELLADONNA

(dehydrocholic acid with belladonna, AMES)

for functional distress of the gastrointestinal tract—especially in geriatrics

Available: DECHOLIN/Belladonna tablets: DECHOLIN (dehydrocholic acid, AMES), 3¾ gr. (250 mg.), and extract of belladonna ¼ gr. (10 mg.). Bottles of 100 and 500.

^{*}Popper, H., and Schaffner, F: *op. cit.*, p. 84.

84650



especially in cases in which nervousness or anxiety was a factor in initiating, aggravating or prolonging the condition. The usual anti-allergic management was followed; the hydroxyzine being added as adjunctive therapy. A few patients experienced mild drowsiness. There was no evidence of withdrawal symptoms or addiction to the drug.

I. M. H. SANTOS, M.D. and

L. UNGER, M.D.

Annals of Allergy (1960), Vol. 18, No. 2, P. 172

A New Treatment of Asthma

The treatment of asthma and its control still present a serious problem in spite of a multiplicity of therapeutic agents that have been employed over the years. Trials of new methods of therapy are in order, and the author

reports on his experience with chlortropbenzyl when administered to a group of 30 asthmatic patients. The drug was supplied as a 5-mg. scored tablet. The dosage ranged from 2.5 to 10 mg. daily. A number of patients took a 5-mg. tablet approximately one hour before bedtime and claimed that they slept well and were not drowsy the following day. Infrequent side-effects were mild. It was noted that good to excellent results occurred more consistently in the younger patients. In the older patient group, emphysema which could not be resolved complicated the asthma. In half of the patients the drug was administered intermittently, since attacks of asthma were occasional. The others took the drug on a continuous basis. Improvement was noted in all patients. While acute attacks did not appear to be alle-

Continued on page 194a

spray on the bandage with **AEROPLAST®** plastic spray-on dressing brand of vibesate¹

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¹ New and Nonofficial Drugs, 1960, pp. 740-742.

² Aeroplast Dressing—U.S. Pat. No. 2,804,073



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following my
tonsillectomy
was almost
nonexistent.
I could eat
and swallow
without
feeling pain
because my
doctor gave me
Xylocaine.
Whatever
that is!**

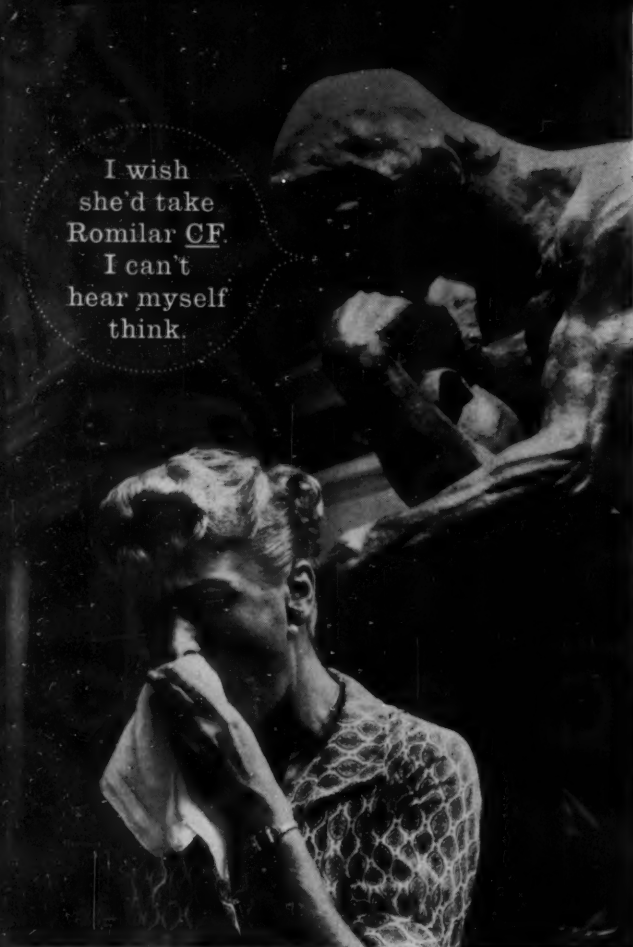
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For almost immediate relief of pain and easier swallowing after T & A, Xylocaine Viscous spreads evenly and adheres to the membranes. Cherry flavored Xylocaine Viscous contains 2% Xylocaine hydrochloride; water miscible and of viscous consistency. Dose: 1 teaspoonful, swished around in the mouth, and then swallowed slowly. Astra Pharmaceutical Products, Inc., Worcester 6, Mass.

*U.S. Patent No. 2,441,498





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ROMILAR CF
for maximum cough relief

MODERN THERAPEUTICS—Continued

viated, further attacks seemed to be effectively prevented. Of the group, 14 patients could claim an excellent result; in ten good response was obtained, and in five patients the results were fair. Several patients spoke of the tranquilizing effect of chlortropbenzyl, saying that they could face their problems with greater ease. Children taking the drug gained weight at a higher rate than they had formerly.

STEPHEN FROMER, M.D.

Annals of Allergy (1960) Vol. 18, No. 3, P. 259

**Inflammation and Edema
Treated with Oxyphenbutazone**

Oxyphenbutazone, a derivative of phenylbutazone, was tested by the authors to discover its effects upon inflammatory and edematous conditions. Given orally, 300 mg. were administered as an initial dose. This was followed by 100 mg. every eight hours for a period of four days, or longer if conditions seemed to warrant it. Seventy-five patients suffering from abscess, cellulitis, edema and thrombophlebitis were given oxyphenbutazone. In 71 individuals, the results were excellent. The pain began to subside in one day, while the redness and edema disappeared within three days. In an additional patient, the redness and edema were gone at the end of five days. Forty-three patients in whom postoperative edema could reasonably be expected were given oxyphenbutazone. Results in 42 were excellent, and good in one patient. No side-effects were noted in either group of patients. The administration of oxyphenbutazone apparently modifies the inflammatory barrier about the area of infection to permit the humoral antibodies to pass more easily into the site. Bacteria and their products, however, may pass outward at the same time. Therefore, all patients with active or suspected infections should be given one of the antibacterial drugs concurrently with oxyphenbutazone to prevent possible spread of bacteria. Since the latter is absorbed from the

Continued on page 196a




ANOTHER NOTCH FOR AMPLUS[®] IMPROVED

(D-AMPHETAMINE + ATARAX[®] + VITAMINS AND MINERALS)

(AND SHE'S LOSING NOTHING BUT WEIGHT)

- She's *not* losing her ambition to reduce. (Thanks to d-amphetamine's proven anorectic action.)
- She's *not* losing her composure. (The tranquilizer, Atarax, calms diet-induced anxiety and jitters.)
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SIMPLE, EFFECTIVE CONTRACEPTION**

196a

MODERN THERAPEUTICS—Continued

gastrointestinal tract, and can thus be administered orally, it possesses a distinct advantage in the ease of administration over the proteolytic enzymes used currently in the treatment of infection and edema.

JOSEPH M. MILLER, M.D., et al.
Antibiotic Med. & Clin. Ther. (1960)
Vol. 7, No. 2, P. 109

Nardil for Endogenous Depression

Various pharmacological compounds are being evaluated in order to replace the empirical use of electroconvulsive therapy for treating cases of endogenous depression. One of the groups of compounds to come under investigation as anti-depressant medication is that of the monoamine oxidase inhibitors. The enzyme, monoamine oxidase, occurs naturally in the body with highest concentration throughout the central nervous system and liver. It is thought to be responsible for the breakdown of serotonin which, in turn, is said to act as a chemical mediator on the oligodendroglia within the brain, and hence in the oxygenation of nerve cells within the brain. It has been postulated that excessive serotonin breakdown will affect the oxygenation of the nerve cells and may be the causative factor in endogenous depression. B-phenylethylhydrazine dihydrogen sulfate (Nardil) has a powerful inhibitory effect on monoamine oxidase.

Forty patients with classical signs of endogenous depression or the depressive phase of manic-depressive psychosis were selected for an evaluation of Nardil. The drug was administered orally in a dosage varying from 45 to 180 mg. daily. Duration of treatment varied from 35 to 180 days. When optimal improvement was believed to have been established, a maintenance dose averaging 30 mg. per day was instituted. Remission of symptoms began at two to six days in the 34 patients who continued to have a therapeutic response, and this seemed maximal 30 days after commencement of therapy. No toxic effects on liver or renal

Concluded on page 198a

MEDICAL TIMES

THE TREATMENT OF YOUR CHOICE



*in arthritis
and related
disorders*

Three different combinations of prednisone, salicylates and buffers provide a choice of therapy to fit the individual needs of your patients, giving optimal relief of symptoms with minimal side effects.

For the acute, inflammatory stage

PREDSEM

Each white tablet contains:

Prednisone* 5 mg.
Calcium Pantothenate 10 mg.
Aluminum Hydroxide
Gel, dried 0.2 Gm.
Magnesium Trisilicate 0.1 Gm.

Antacids and calcium pantothenate guard against gastric distress and peptic ulcer.

For the sub-acute, covers phase

SALCORT®-DELTA

Each yellow tablet contains:

Prednisone* 1 mg.
Potassium Salicylate 0.3 Gm.
Calcium Pantothenate 5 mg.
Calcium Ascorbate 30 mg.
(Equiv. to 25 mg. Ascorbic Acid)
Calcium Carbonate 60 mg.
Aluminum Hydroxide
Gel, dried 0.12 Gm.

Potassium salicylate compensates for reduced prednisone dosage. Buffered with protective antacids, fortified with ascorbic acid and calcium pantothenate.

For long-term maintenance

SALCEDROX®

Each orange tablet contains:

Sodium Salicylate 0.3 Gm.
Aluminum Hydroxide
Gel, dried 0.12 Gm.
Calcium Ascorbate 60 mg.
(Equiv. to 50 mg. Ascorbic Acid)
Calcium Carbonate 60 mg.

High salicylate dosage, buffered to prevent gastric disturbances.

*U.S. Pat. No. 2579479

Write for detailed literature and dosage schedules.

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to **NORMALIZE** bowel function;



It has been shown¹ that the colon resumes a more normal peristaltic pattern² when it is supplied with a stool of medium soft consistency of sufficient bulk,³ especially if the indigestible portion of that bulk consists primarily of hemicellulose.⁴ To provide smooth bulk—L. A. Formula—effective,⁵ palatable, economical.

1. Dolkart, Dentler & Barrow, *Ill. Med.J.*, 90:286, 1946
2. Adler, Atkinson & Ivy, *Am.J. Digest.Dis.* 8:197, 1941
3. Wozasek & Steigman, *Am.J. Digest.Dis.* 9:423, 1942
4. Williams & Olmstead, *Ann.Int. Med.* 10:717, 1936
5. Cass & Wolf, *Gastroenterology*, 20:149, 1952.



*Abbreviation for the Latin "Levis Amplitudo", meaning smooth bulk.

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MODERN THERAPEUTICS—Concluded

function were noted. Blood chemistry values remained normal, and no other side-effects were observed.

LEONARD LEVY, M.D. and J. LOHRENZ, M.D.
Canad. Med. Assn. J. (1960) Vol. 82, No. 20, P. 1031

Prednisolone Acetate

The local injection of steroids has been reported as useful in the treatment of many dermatologic conditions, but relatively little attention has been given to prednisolone. In the treatment of lesions such as keloids, lichen planus, and sarcoids, prednisolone offers a distinct advantage in that the effective concentration is lower. Either by syringe or the vibration technique, prednisolone acetate was administered intradermally to 42 patients; the concentration ranging from 2.5 to 25 mg./cc. Due to the presence of multiple lesions, uninjected areas were used as controls, and the amount of regression at the injected sites compared with the control areas. A dramatic difference in appearance usually followed in the treated lesions. In larger lesions of necrobiosis lipoidica diabetorum, there was a flattening of the active border and small white or yellow particles persisted for months; the smaller lesions resolved without atrophy. The lesions of sarcoid showed prompt regression after each injection, and there was no evidence of recurrence after the lapse of a year. Excellent results were obtained in granuloma annulare, but there was a tendency to recurrence after a period of months. In keloids and hypertrophic scars results showed a 90- to 100-percent improvement on the basis of elevation, thickness, and in duration of the lesions. The mechanism of the action of local injections is not completely understood, but is currently under study. Results obtained by the authors indicate that this drug is a useful therapeutic agent in many inflammatory, granulomatous, and hyperplastic conditions.

CAPT. JERE D. GUIN (MC), U.S.A.F., et al.
A.M.A. Arch. of Dermat. (1960)
Vol. 81, No. 3, P. 438

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and 22½% more vital capacity

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Epinephrine bitartrate, 7.0 mg. per cc., suspended in inert, nontoxic aerosol vehicle. Contains no alcohol. Each automatically measured dose contains 0.15 mg. epinephrine.

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Isoproterenol sulfate, 2.0 mg. per cc., suspended in inert, nontoxic aerosol vehicle. Contains no alcohol. Each automatically measured dose contains 0.075 mg. isoproterenol.

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A Superb Gift

This imported decorator's piece makes an outstanding gift or prize that surely will be treasured by its recipient. Combining grace and a touch of humor, it will add a note of charm to a physician's office or home.

Styled and hand-painted by Italian artists, the glazed ceramic stands one foot high.
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senile vaginitis responds to "Premarin" Vaginal Cream

Senile vaginitis reflects a lack of estrogen stimulation and "Premarin" Vaginal Cream greatly simplifies treatment by restoring the influence of estrogen directly to the vaginal mucosa. A healing and soothing effect is produced which is almost immediately evident.



"Premarin" Vaginal Cream promotes proliferation and vascularity of the epithelium, lowers vaginal pH to an acid range unfavorable to the growth of pathogens, and increases resistance to infection. (Approximate dosage range: 2 to 4 Gm. daily.)

Given pre- and postoperatively, "Premarin" Vaginal Cream tends to restore the

integrity of friable tissues, thus facilitates surgery and favors more rapid healing. (Suggested therapy: 2 to 4 Gm. daily for about 10 days before and 10 days after surgery.)

"Premarin" H-C Vaginal Cream (with hydrocortisone) is valuable when immediate

anti-inflammatory, antipruritic action is needed.

Supplied: "Premarin" Vaginal Cream — 0.625 mg./Gm. conjugated estrogens, equine in non-liquefying base — 1½ oz. tubes with applic. "Premarin" H-C Vaginal Cream — same estrogen content plus 1 mg./Gm. hydrocortisone (present as acetate) — 1 oz. tubes with applic.

In monilial vaginitis, "Vanay" Vaginal Cream is particularly effective therapy. Unique self-regulating action maintains continuous fungistatic control without danger of local irritation. Nonsensitizing, nonirritating, nonstaining, odor-free.



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6036



NEWS AND NOTES

Selected items of current interest from the fields of medical research and education

Paralysis from Adulterated Cooking Oil

Five physicians from the University of Pennsylvania have volunteered to spend a month each as members of an international Red Cross team in Morocco, treating paralyzed victims of adulterated cooking oil. Each doctor will act as delegate and medical advisor for the League of Red Cross Societies which has been carrying on a rehabilitation program for the victims since they were stricken in the Fall of 1959. The doctors will not be compensated for their professional services. The American Red Cross will provide travel expenses and MEDICO will provide funds for living expenses. Each physician will spend approximately one month in Morocco with a brief overlapping period to assist his successor. An announcement of the joint international project stated that the doctors were recruited by MEDICO (Medical International Cooperation Organization), a non-profit organization providing direct medical aid to newly developing countries. MEDICO's cofounder was Thomas Dooley, the famous "jungle surgeon" who established three hospitals in Laos.

Ten thousand Moroccans were stricken last November after eating food prepared with cooking oil mixed with an oil used to flush the engines of jet planes. Twenty-seven Moroccan merchants were found guilty of preparing and selling the poisonous concoction to increase profits. Five received death penalties, and the others were imprisoned for life. Of

the 10,000 paralyzed victims, 8,500 are now undergoing treatment in rehabilitation centers established by the Red Cross. About 20 percent of the stricken are now reported cured, and 30 percent are making marked progress. At present, a medical staff of 50 from Red Cross Societies in 13 nations are caring for the victims, most of whom are under 18 years of age.

Philadelphia Hospitals Merge

The Preston Maternity Hospital, Philadelphia, will coordinate its interests with Pennsylvania Hospital, and transfer its services to Pennsylvania's Division of Obstetrics and Gynecology in its Department for Sick and Injured. The Preston Retreat, as it was originally known, was founded in 1836 through a bequest of Dr. Jonas Preston, and opened in 1886 as a lying-in hospital devoted to the care of indigent married women of good character. The name was changed in 1946 to the Preston Maternity Hospital.

Preston Maternity and Pennsylvania Hospitals have reportedly participated in mutual interests for many years. Preston's present physician-in-charge, Dr. John C. Hirst, and Dr. Howard Isaacson, his assistant, are both members of Pennsylvania Hospital's Division of Obstetrics and Gynecology. A course of midwifery, formerly given at Preston will now be offered at Pennsylvania Hospital.

Continued on page 206a



A "fitting" concern for the new mother ...time



A new baby in the family, whether the first or the fourth, makes it necessary for the whole family, particularly the mother, to adjust. For this, time is needed.

Your postpartum patient looks to you for advice on the best way to plan ahead.

Security—two ways

She experiences special physical comfort when you prescribe either the regular RAMSES® Diaphragm or the new RAMSES BENDEX®, an arc-ing type diaphragm.

The regular RAMSES Diaphragm, suitable for most women, is made of pure gum rubber, with a dome that is unusually light and velvet smooth. The rim, encased in soft rubber, is flexible in all planes permitting complete freedom of motion.

For those women who prefer or require an arc-ing type diaphragm, the new RAMSES BENDEX embodies all of the superior features of the conventional RAMSES Diaphragm, together with the very best hinge mechanism contained in any arc-ing diaphragm. It thus affords lateral flexibility to supply the proper degree of spring tension without discomfort.

For added protection—

*RAMSES "10-Hour" Vaginal Jelly**

To give your patient the full protection of the diaphragm and jelly method—at least 98 per cent effective¹—RAMSES Jelly is uniquely suited for use with either type of RAMSES Diaphragm. It is not static, but flows freely over the diaphragm rim to add lubrication and form a sperm-tight seal maintained for *ten full hours*. It is nonirritating and nontoxic.

You can now prescribe a complete unit with either type of diaphragm. RAMSES "TUK-A-WAY"® Kit #701 contains the regular RAMSES Diaphragm with Introducer and a 3-ounce tube of RAMSES Jelly; the #703 Kit contains the RAMSES BENDEX Diaphragm and Jelly. Each in attractive zippered case. At all prescription pharmacies.

Reference: 1. Tietze, C.: Proceedings, Third International Conference Planned Parenthood, 1953.

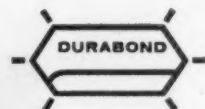
RAMSES, BENDEX, and "TUK-A-WAY" are registered trademarks of Julius Schmid, Inc.

*Active agent, dodecaethyleneglycol monolaurate 5%, in a base of long-lasting barrier effectiveness.

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Rynatan[®] promises just two things:

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2. with remarkable
lack of drowsiness ^{2,3,4,5,6,7}

RYNATAN has more published clinical proof of effectiveness, safety and long action* than any other oral decongestant.

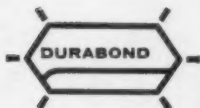
1. Report on a New Repository Principle, Med. Sc. 3:376, 1958. 2. Steller, R. E.; DeMar, E. A., and Schwartz, F. R.: Indust. Med. & Surg. 28:362, 1959. 3. Villanyi, L., and Stillwater, R. B.: E.E.N.T. Monthly 38:650, 1959. 4. Lawler, E. G., and Limperis, N. M.: Clin. Med. 5:1669, 1958. 5. Simon, D.: Clin. Med. Sept., 1960. 6. Sherwood, H., and Epstein, J.: New York J. Med. 60:1793, 1960. 7. Kile, R. L.: Antibiotic Med. & Clin. Therap. 5:578, 1958.

RYNATAN TABULES keep heads crystal clear for 10-12 hours with a single oral dose. Each tabule contains: Phenylephrine tannate, 25 mg.; Chlorpheniramine tannate, 8 mg.; Pyrillamine tannate, 25 mg. **Adults:** 1 or 2 tabules each 12 hrs. **Children:** Each 12 hrs.—6-7 yrs. ½ tabule; 8-11 yrs. ½-1 tabule; 12 yrs. and older 1-2 tabules.

RYNATAN SUSPENSION . . . the only long-acting liquid oral nasal decongestant for children. Each 5 cc. contains: Phenylephrine tannate, 5.0 mg.; Chlorpheniramine tannate, 2.0 mg.; Pyrillamine tannate, 12.5 mg. **Children:** Each 12 hrs.—6 mos.—1 yr. ½ tsp.; 2-4 yrs. ½ tsp.; 5-7 yrs. 1 tsp.; 8-11 yrs. 2 tsp.; 12 yrs. and older 2-3 tsp. Adjust dosage as required.

***All Rynatan-Rynatuss products employ**

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AND NOW...YOUR PATIENTS CAN HAVE ALL THE BENEFITS OF RYNATAN PLUS COUGH CONTROL, IN

NEW PRODUCT RynatussTM

relieves not only the cough...but clears the entire breathing apparatus all-day or all-night with a single oral dose*

action: Rynatuss provides—

- **an effective antitussive** to inhibit nonproductive cough. It is non-narcotic, thus does not possess the depressive, constipating or habituating properties inherent in such antitussive agents as codeine. However, experimental tests have shown that the antitussive in Rynatuss is 1½ times as active as codeine in controlling the cough reflex.
- **a superior antihistamine** to reduce bronchial secretion and to counteract allergic reactions.
- **a potent vasoconstrictor** to decongest mucous membrane and alleviate postnasal drip.
- **a reliable bronchodilator** to aid in the removal of accumulated secretions.

indications:

Coughs, mild or severe, acute or chronic, in head or chest congestion, colds, sinusitis, bronchitis.

RYNATUSS TABULES. Each tabule contains: Carbetapentane tannate (non-narcotic), 60 mg.; Chlorpheniramine tannate, 5 mg.; Ephedrine tannate, 10 mg.; and Phenylephrine tannate, 10 mg. **Adults:** 1 to 2 tabules each 12 hours. **Children:** 2 to 6 years old ½ tabule each 12 hours; 6-12 yrs. 1 tabule each 12 hours.

RYNATUSS SUSPENSION. Each 5 cc. contains: Carbetapentane tannate, 30 mg.; Chlorpheniramine tannate, 4 mg.; Ephedrine tannate, 5 mg.; and Phenylephrine tannate, 5 mg. **Children** under 6 years old ¼ to ½ tsp. twice daily; 6 years or older 1 or 2 tsp. twice daily.

DURABOND®

the only long-acting principle proven by radioactive tracer studies in human blood levels. (Bogner, R. L., and Moses, C.: Evaluation of a Sustained Release Principle in Human Subjects Utilizing Radioactive Technique, to be published, 1960.)

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Dr. Kerr Lachlan White

Dr. Kerr Lachlan White, Associate Professor of Preventive Medicine at the University of North Carolina School of Medicine, Chapel Hill, will become Professor and Head of the Department of Preventive Medicine at the University of Colorado School of Medicine. Under the Doctor's leadership, it is expected that the Department of Preventive Medicine will be reorganized, both in respect to its teaching and research programs.

Study of Health Agencies

The Rockefeller Foundation has announced the formation of a committee to make an exploratory study of the role and responsibilities of voluntary health and welfare agencies in the United States. The chief question the committee will decide is whether a later, more com-

prehensive study of voluntary health and welfare agencies would be feasible and in the public interest. A report is expected by the end of this year.

New Unit for Mentally Retarded

The J. N. Adam Memorial Hospital, Perysburg, New York, is being renovated from a facility for tubercular patients to one for the mentally retarded. Dr. Arthur W. Pense, deputy commissioner in charge of the Office of Mental Retardation of the New York State Department of Mental Hygiene, made the announcement. The remodeled hospital will be known as the J. N. Adam State School Division of Gowanda State Hospital, and will be utilized for the treatment of severely retarded children requiring bed care.

Continued on page 208a

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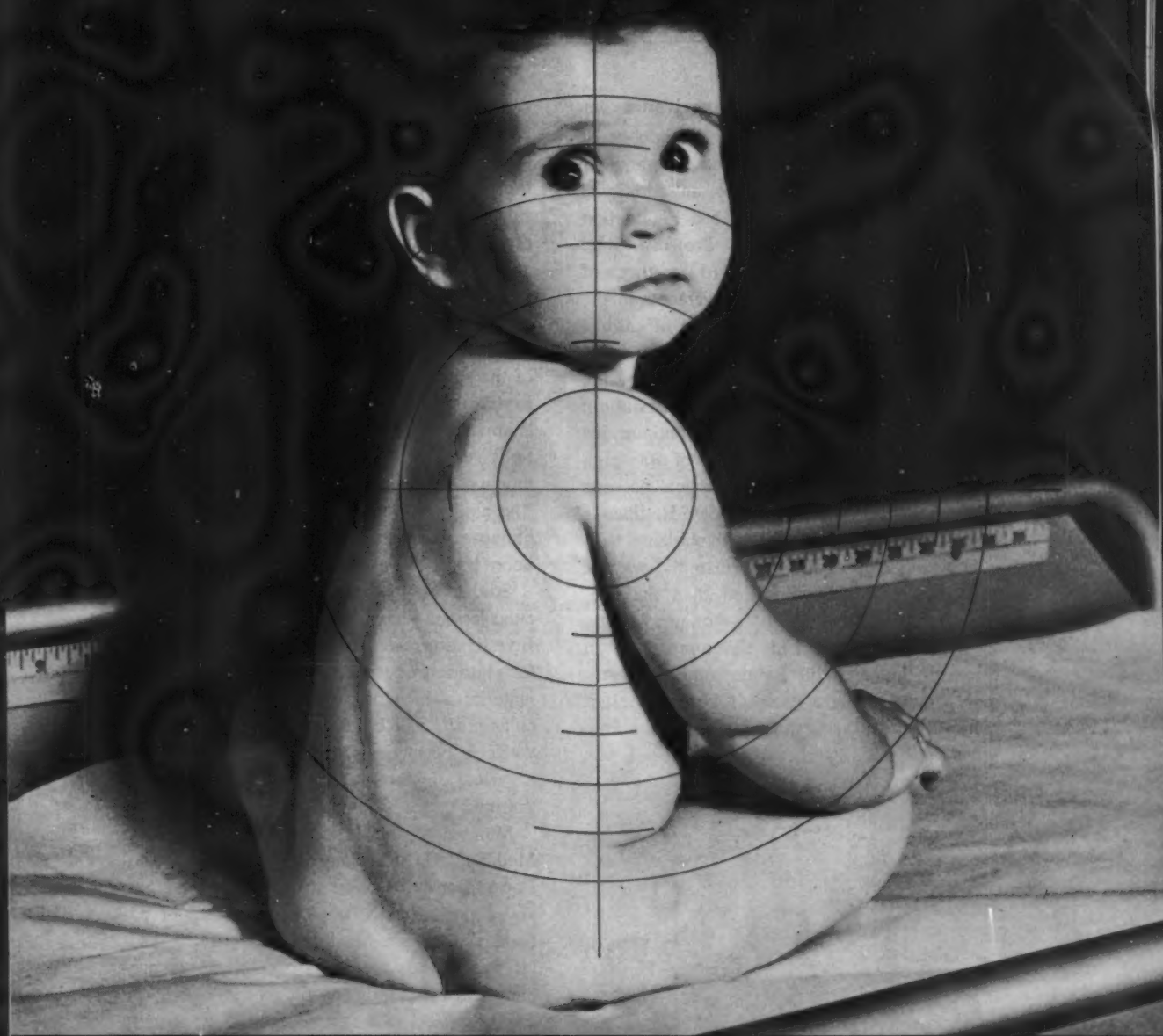
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50 mg. • L-Lysine Monohydrochloride 25 mg. • Vitamin E (Tocopherol Acid Succinate) 10 Int. Units • Rutin 12.5 mg. • Ferrous Fumarate (Elemental Iron, 10 mg.) 30.4 mg. • Iodine (as KI) 0.1 mg. • Calcium (as CaHPO₄) 35 mg. • Phosphorus (as CaHPO₄) 27 mg. • Fluorine (as CaF₂) 0.1 mg. • Copper (as CuO) 1 mg. • Potassium (as K₂SO₄) 5 mg. • Manganese (as MnO₂) 1 mg. • Zinc (as ZnO) 0.5 mg. • Magnesium (MgO) 1 mg. • Boron (as Na₂B₄O₇·10H₂O) 0.1 mg. Bottles of 100, 1000.

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Target for Dermatoses

A baby's skin—without the protection of an adequate "acid mantle"—is an easy target for inflammation, infection, and stubborn chronic dermatoses.

COR-TAR-QUIN™ is for babies—and for any patient in whom low resistance, refractoriness to treatment, or risk of complications puts a premium on fast, dependable response.

Thoroughly established in dermatologic practice, COR-TAR-QUIN is one of the most sophisticated topical preparations available today . . . a unique combination of anti-inflammatory hydrocortisone, anti-infective diiodohydroxyquinoline, and keratolytic tar incorporated in the exclusive ACID MANTLE® vehicle that potentiates active ingredients and speeds heal-

ing by restoring and maintaining the protective mantle of acidity characteristic of healthy skin.

COR-TAR-QUIN™ **CREME pH 5.0 LOTION**

1% diiodohydroxyquinoline with ¼%, ½% or 1% micronized hydrocortisone alcohol and 2% liquor carbonis detergens in the exclusive ACID MANTLE® vehicle.



WORLD LEADER IN DERMATOLOGICALS

DOME CHEMICALS INC.
New York • Los Angeles

Research at University of Pennsylvania

Research carried on at the University of Pennsylvania will be continued for another three years, made possible by an additional grant from the John A. Hartford Foundation in the amount of \$315,000. Projects to be continued under the grant are: (1) methods of safer anesthesiology, (2) improvements in the methods of diagnosis and treatment of cardiac lesions, and care of patients subjected to operations on the heart, and (3) a study of the lesions of blood vessels and their alleviation.

Dr. R. D. Dripps plans to continue his efforts to develop further methods of managing circulation and respiration of surgical patients from a standpoint of anesthesiology. He intends additional studies of a new alkalizing substance to see if it offers more in the way of reversing cardiac deterioration than the substance now in common use—sodium lactate. He is also working on the development of an electrode-tipped needle for the rapid measurement of oxygen in a patient's blood. Present methods of measuring the oxygenation are time

consuming and involve some guesswork, according to the Doctor. He believes that, with improvements in the technique of polarography, the process could be handled even at the bedside, thus providing almost immediate diagnosis of a vital aspect of respiratory function.

Dr. Dripps is also working on the clinical application of a newly designed respirator for surgical patients, called a Bird assistor. This apparatus provides, for the first time, control of the rate of flow of gases into the lungs. He explains that, by reducing the rate of flow, it is apparently possible to move air past obstructions such as are present in asthma and pulmonary emphysema at much lower pressures. The ability to ventilate the lungs at a reduced pressure spares the circulation and should be a boon both in the operating room and ward.

Studies will be continued of peripheral vascular lesions which are now so common in man. Investigations will be made of the tendency for clotting to occur in blood vessels. Varying materials which may be used in human vascular grafts will be carefully analyzed. Studies will also be made of the nature and causes of a variety of blood-vessel lesions, their prevention and cure.

Members of the Departments of Surgery and Medicine will use their share of the Hartford Foundation grant to improve present methods, and expand the scope of over-all care of patients who require heart operations. Their studies will include all facets of patient management during the diagnostic study period, the critical period when the operation is actually being performed, and the postoperative period.

School for Handicapped Children

A dedication program was held recently for the Pioneer School for Handicapped Children in Pittsburgh. There are specially designed rest rooms and therapy rooms. All student facilities are on one floor and all classrooms have doors leading to outdoor areas.

Continued on page 210a

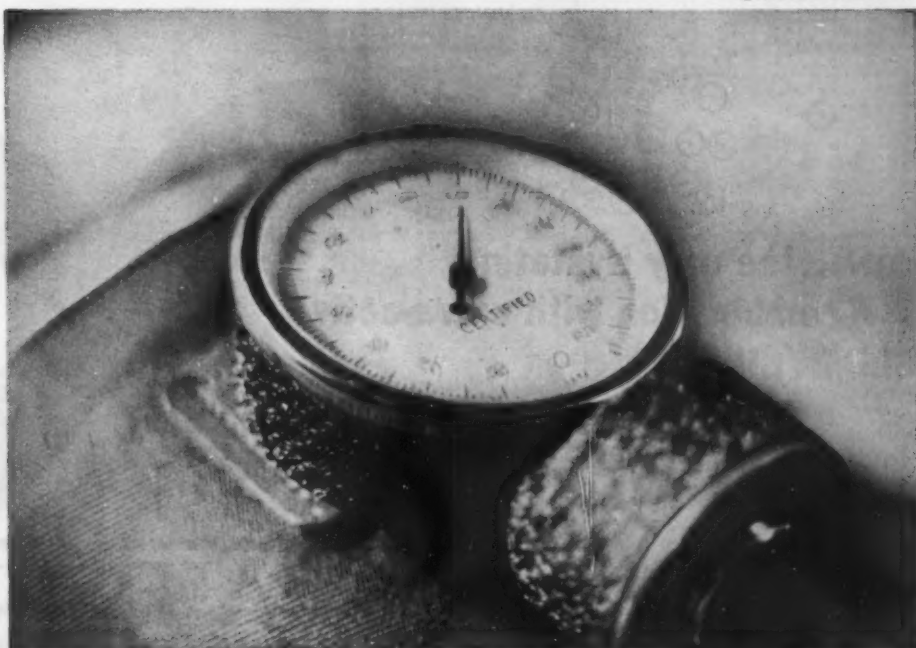


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in hypertension— first rule out pheochromocytoma

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CIBA

SUMMIT, NEW JERSEY

Measles Vaccine

Further clinical trials of an attenuated measles vaccine in special groups, and conservative extension of its use in normal children is desired before its release for mass immunization programs. This vaccine was developed in the Research Division of Infectious Diseases, Children's Hospital Medical Center and the Department of Bacteriology and Immunology and Pediatrics at the Harvard Medical School.

A strain of measles virus (Edmonston strain) formed the basis for the development of the present vaccine. It is noted that earlier attempts to provide immunization against measles date to British experiments in 1749 which were based on inoculations of blood or secretions from the upper respiratory tract of patients with measles by scarifying the skin as in smallpox inoculations. Much later, in 1923, in Italy attempts were made to employ

attenuated or inactivated measles virus in a vaccine, but the protection offered was not clearly demonstrated.

After successive failures in early attempts to propagate the measles virus in chick embryos, Dr. John F. Enders and his associates, in 1957, showed that the Edmonston strain could be adapted to chick embryos. The measles vaccine thus developed was first employed in monkeys in which no circulating measles antibodies had been found in the blood stream. Successive tests indicated that: the vaccine produced antibodies to measles 30 to 35 days following immunization; no rash was noted, and there were no signs of illness attributable to the effect of the virus. Later infection of the living animals with the measles virus served only as an antibody booster.

Two vaccines were prepared for the first

Continued on page 216a

Now...the only Nystatin
combination with extra-active

DECLOMYCIN®
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Demethylchlortetracycline and Nystatin **LEDERLE**

CAPSULES, 150 mg. DECLOMYCIN Demethylchlortetracycline HCl and 250,000 units Nystatin.
DOSAGE: average adult, 1 capsule four times daily.

LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

Bronchodilator action of oral **ELIXOPHYLLIN[®]**

As shown by clinical observations:

Acute asthmatic attacks were terminated in 10 to 30 minutes after a single oral dose in 91 of 107 patients (85%),^{1,2,3,4}

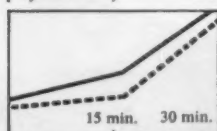
Chronic asthmatic symptoms were also well controlled and frequency of attacks markedly reduced in most patients by dosage every 8 hours.^{1,3,4}

As shown by pulmonary function tests:

Spirometric studies in acetylcholine-induced asthma showed oral Elixophyllin equivalent in therapeutic effects to intravenous aminophylline (500 mg.) and comparable both prophylactically and therapeutically to

subcutaneous epinephrine.⁵

Further pulmonary function studies after doses of 60 or 75 cc. Elixophyllin demonstrated increases in vital capacity and maximum breathing capacity as shown below:

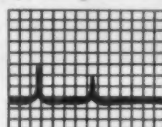


Vital capacity increase of 30.6% in 30 minutes—average of 69 patients.^{1,5,6}

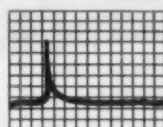
Maximum breathing capacity increase of 25.7% in 30 minutes—average of 49 patients.^{5,6}

Improved cough efficiency as shown in a patient with bronchial asthma following Elixophyllin dosage of 75 cc.:⁷

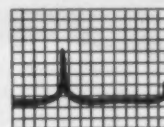
Peak
flow rate
(lit./sec.)



Before
2.24



After 30 min.
2.93



After 60 min.
3.20

Volume exhaled (liters) increased from 0.076 to 0.391 after 30 minutes, and to 0.805 after 60 minutes.

In a series of 25 patients receiving a single dose of 60 or 75 cc. Elixophyllin, the efficiency of the cough response was markedly enhanced, with a mean increase of 33% in rate of air flow and over 100% in the volume of air expelled on maximal cough.⁷

For the bronchospasm of acute and chronic asthma, emphysema, and bronchitis.

Elixophyllin provides prompt, sustained relief without undesirable effects of other medications such as: sympathomimetic stimulation, barbiturate depression, or suppression of adrenal function. This oral theophylline therapy is virtually free from gastric side effects.

DOSAGE: For acute attacks, a single dose of 75 cc. for adults, or 0.5 cc. per lb. body weight for children.

For chronic symptoms, doses at 8-hour intervals (before breakfast, at 3 P.M., and be-

fore retiring) in amounts as follows: for adults—45 cc. doses first two days, gradually reduce to 30 cc. doses; for children—doses of 0.3 cc. per lb. body weight for first two days, gradually reduce to 0.2 cc. per lb. body weight.

Each tablespoonful (15 cc.) contains: theophylline 80 mg. (equivalent to 100 mg. aminophylline) in a special hydroalcoholic vehicle assuring rapid, dependable absorption (alcohol 20%).

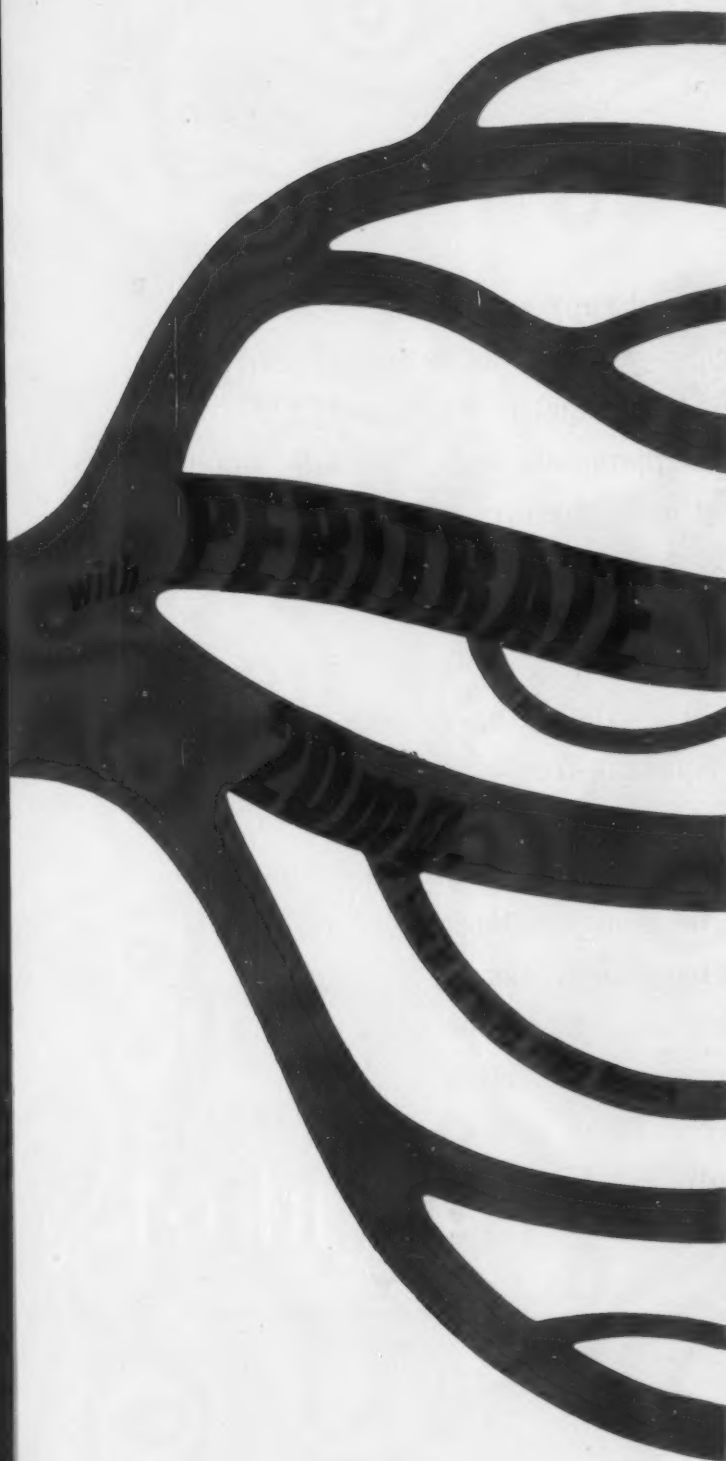
1. Spielman, D.: Ann. Allergy 15:270, 1957. 2. Schluger, J. et al.: Am. J. Med. Sci. 234:28, 1957. 3. Kessler, F.: Connecticut St. M. J., 21:205, 1957. 4. Greenbaum, J.: Ann. Allergy 16:312, 1958. 5. Frank, D. E.: Antibiotic M. 6:338, 1959. 6. MacLaren, W. R.: To be published. 7. Bickerman, H. A. et al.: Sci. Exh., A.M.A. Convention, June 1959.

Sherman Laboratories

Detroit 11, Michigan

ELIXOPHYLLIN

improve coronary blood flow in angina and postcoronary patients



■ **a proven drug—**
supported by extensive clinical experience during the last ten years

■ **selective physiologic action—**

unlike most nitrites, dilates coronary vessels principally, with minimal peripheral effects, so that coronary blood flow is increased with no significant change in blood pressure or pulse rate

■ **exceptionally safe—**

safe for prolonged use—essentially free from side effects—tolerance has not been reported—no hypotension, orthostatic or otherwise, has occurred—*so safe, it is used routinely even after a coronary*

■ **effective in mildest to severest angina pectoris—**

4 out of 5 patients experience reduced frequency and severity of anginal attacks, increased exercise tolerance, lowered nitroglycerin dependence, improved ECG findings

■ **ideal in postcoronary convalescence—**

helps establish and sustain collateral circulation to reduce the extent of myocardial damage, to encourage natural healing and repair, to minimize ensuing anginal attacks

■ **adaptable prophylaxis—**

available in several formulations to meet the individual requirements of patients with coronary artery disease: *Peritrate 20 mg.* for basic prophylaxis, *Peritrate with Phenobarbital* for the apprehensive patient, *Peritrate Sustained Action* for convenient 24-hour protection with just 2 tablets daily.



MORRIS PLAINS, N.J.



When there's a pram in her future,

the form of well-tolerated ferrous fumarate. (And, speaking of Film-tab, the advantages of this exclusive Abbott coating are in evidence here, too: A compact tablet... freedom from those objectionable vitamin tastes or odors... a bright, baby-pink, calorie-free coating... tablets that won't chip or stick in the bottle... and increased protection against loss of potency.) That name, again? Pramilets. For the lady with a pram in her future.

What a happy reflection she sees! Any wonder, on such an occasion? However, long before that new maternity outfit became appropriate, a good prenatal supplement would have probably been in order. This is where Pramilets fill the bill. With just a single Film-tab daily, Pramilets provide twenty essential vitamins and minerals, including an ample dosage of phosphorus-free calcium and iron, in

she'll
need
Pramilets®

Comprehensive vitamin-mineral support with just one Film-tab daily.



Pramilets—Abbott's Phosphorus-free Prenatal Supplement.
Film-tab—Film-sealed Tablets, Abbott; U.S. Pat. No. 2,581,085.



008270

today



clinical trials in humans. Vaccine A, which had been passed through 14 successive chick-cell cultures and other purifying processes, was tried in seven adults all of whom had circulating measles antibodies. No deleterious effects were noted. The second, Vaccine B, was prepared in a manner similar to "A" but received additional passages in chick-embryo systems in the expectation that it would induce milder reactions than "A."

The first trial of the attenuated measles vaccine in children was made in October 1958. Eleven children, from a state school for the mentally deficient operated by the Department of Mental Health in Massachusetts, were given the vaccine after consent of parents or guardians had been obtained, and it had been determined that none of the children had a prior history of measles. Eight of them demonstrated temperature elevations of 100 degrees F. or

higher, nine developed a rash, and one developed Koplik spots. All pursued their normal activities with no impairment of appetite, or excretory function, and there were no respiratory-tract involvements. All demonstrated circulating antibodies against measles, a factor that persisted 18 months after vaccination.

A second trial in Boston, early in 1960, was conducted among normal children living at home. As results of the trial, fevers ranging from 100 to 106 degrees developed but were short-lived in 35 of 39 children six to ten days following injection; a few developed watery eyes or heavy lids, but no redness was seen; more than half developed a cough which may or may not have been due to the vaccine; listlessness accompanied the fevers, and there were some instances of loss of appetite. Antibodies against measles were present in the blood stream of all 39 children who had received injections, from four to eight weeks following vaccination. For the most part, parental response was enthusiastic. Mothers who had previously nursed children through measles were especially pleased with the mild reactions.

Medical Aspects of Space Operations

A group of medical officers from the Army, Navy, and Air Force were given an intensive two-week course in space medicine at the Air Force Missile Test Center. The new course will be offered on a continuing basis. Its purpose is to make available a pool of qualified medical officers from the three services who will be able to function as space surgeons to support future requirements. Thirty-eight key medical instructors from the three services, other governmental agencies, and private industry will teach subjects ranging from a history of astronautics to acceptable metabolic aberrations in space operations. About 50 medical officers will take this space surgeon training each year.

Continued on page 218a



"Remember the detail man you kidded about small samples?"



What 5-fold absorption really means...

Appetite...
Growth with

Cynal

Ion-exchange vitamin B₁₂ administration provides unique superiority over previous oral forms of the vitamin. Present in Cynal as LB 12 ion-exchange vitamin B₁₂ protects against gastric destruction and provides smooth, sustained absorption... up to 5 times¹ as great as with ordinary preparations.

Cynal therapy aids in stimulating appetite, increasing food intake in malnutrition and helps insure healthy growth.

A single dose of Cynal provides not only generous amounts of Vitamin B₁₂ but also vitamins B₁ and B₆ as valuable adjuncts to absorption² and body metabolism.

LLOYD BROTHERS, INC.

CINCINNATI 3, OHIO

EACH "CHERRO-CHEW" TABLET CONTAINS:

Thiamine mononitrate
(vitamin B₁) 10 mg.
Vitamin B₁₂ (as L. B. 12*) 25 mcg.
Pyridoxine hydrochloride
(vitamin B₆) 5 mg.

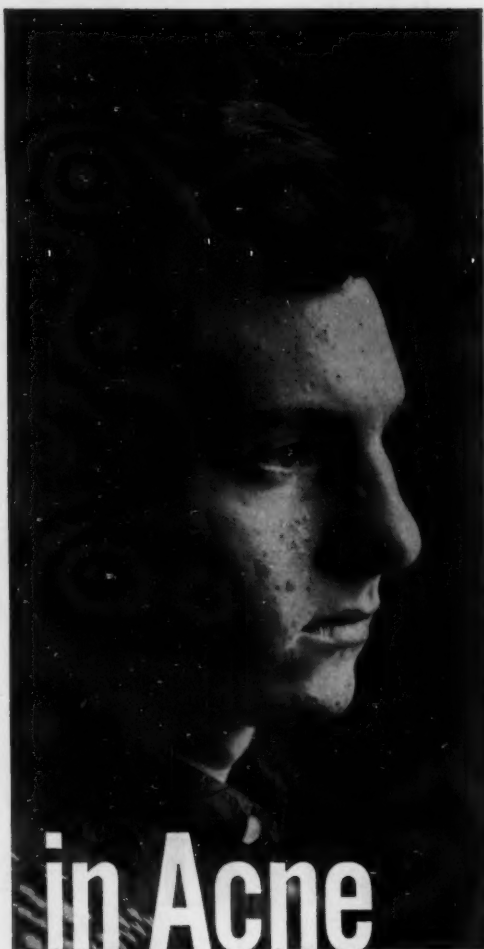
*Lloyd's absorption-enhancing complex of vitamin B₁₂ (B₁₂ from Cobalamin Concentrate).

DOSE: One tablet per day.

SUPPLIED: Bottles of 50 tasty "Cherro-Chew" tablets.

REFERENCES: 1. Chow, B. F.: Ger-
ontologia 2:213-221, 1958.
2. Chow, B. F., et al.: Am. J.
Clin. Nutrition 6:386, 1958.





in Acne pHisoHex®

(antibacterial, nonalkaline, nonirritating, hypoallergenic detergent)

augments therapy with excellent results

pHisoHex, containing 3 per cent hexachlorophene, provides continuous antibacterial action against infection for patients with acne. Much more effective than soap in cleansing, it deposits hexachlorophene "... as a semi-permanent film on the skin of frequent users."¹ When the regular use of pHisoHex was added to the standard treatment for acne, "no patient failed to improve."²

1. Smylie, H. G.; Webster, C. U., and Bruce, M. L.: *Brit. M. J.* 2:606, Oct. 3, 1959. 2. Hodges, F. T.: *GP* 14:86, Nov., 1936.

Winthrop LABORATORIES
New York 18, N. Y.

Dr. Thomas D. Kinney at Duke

Dr. Thomas D. Kinney has been named Professor and Chairman of the Pathology Department at the Duke University Medical Center. He is currently a Professor of Pathology at the Western Reserve University Medical School, Cleveland, and Director of Pathology at Cleveland Metropolitan General Hospital. Dr. Kinney is Chairman of the U.S. Public Health Service. He has served as a council member of the International Academy of Pathology and of the Society for Experimental Biology and Medicine, and as chairman of the general research committee of the American Society for Clinical Pathologists. He is also editor of *Laboratory Investigation*.

Dr. Gordon Named Associate Editor

Dr. Burgess Lee Gordon, a native of Spokane, Wash., has been appointed associate editor of the *Journal of the American Medical Association*.

For the past three years, Dr. Gordon has been director of education at the Lovelace Foundation, Albuquerque, N. Mex. However, most of his medical training and professional activities have centered around Philadelphia.

He was clinical professor of medicine at Jefferson Medical College, Philadelphia, his alma mater, for four years, and served as president of Woman's Medical College, Philadelphia, from 1951 to 1957.

Dr. Gordon's experience in medical writing, medical teaching, and medical practice will be "exploited maximally" in his new position said Dr. Talbott, A. M. A. editor.

Russian Medicine Inferior to U. S.

The overall quality of Russian medicine is "well below" that of the United States, according to *Today's Health*.

"Russia is a vast and sprawling land and most of its people live away from the cities.

Continued on page 220a

NOW... A DRUG THAT LOWERS CHOLESTEROL LEVELS AS MUCH AS 200 mg.% WITH NO ANNOYING SIDE EFFECTS IN 80% OF PATIENTS...AND NO DIETARY RESTRICTIONS

NICALEX*

New NICALEX reduces blood cholesterol levels as much as 200 mg. % with no flushing, itching or gastrointestinal disturbance in 80% of patients.¹⁻⁴ Significant reductions have been obtained in close to 90% of hypercholesteremic patients to date.¹⁻⁴ Lowered cholesterol levels can be maintained indefinitely with little or no discomfort to most patients. And there is no need to restrict the diet throughout therapy.

A newly synthesized salt of nicotinic acid, NICALEX is "...as effective in reducing blood cholesterol as plain nicotinic acid..."⁵ But unlike the older therapy, which produces vasomotor and gastrointestinal side effects in the vast majority of patients, NICALEX is characterized by a

TABLETS aluminum nicotinate Walker markedly reduced incidence of unpleasant reactions.¹⁻⁵

NICALEX is so well tolerated because it is hydrolyzed *slowly* and *uniformly* in the gastrointestinal tract into aluminum hydroxide, an effective buffering agent, plus active nicotinic acid. Thus, a sustained cholesterol-lowering action can be readily maintained with a lower incidence of unwanted effects.

Dosage: 2 to 4 tablets t.i.d., with or after meals. Each tablet contains aluminum nicotinate Walker equivalent in activity to 500 mg. of nicotinic acid.

Supplied: Bottles of 100 and 1000.

References: 1-Tandowsky, R. M.: Personal communication. 2-Parsons, W. B.: *Curr. Therapeut. Res.* 2:137 (May) 1960. 3-Thompson, C. E.: Personal communication. 4-Bihen, L. H.; Kurstin, W., and Protas, M.: Personal communication. 5-Hobbs, T. G.: Personal communication.

*PAT. PENDING

Walker

LABORATORIES, INC., MOUNT VERNON, N. Y.

The kind of public health, sanitation and medical care they enjoy, therefore, is by our standards poor."

The article, based on the opinions of American physicians who have visited Russia, said the Soviet doctor labors under many handicaps.

"The State insists on medical services to all citizens, but it gives the physician a limited budget, insufficient laboratory personnel and equipment, and saddles him with a patient and administrative load far in excess of that which any physician can handle and still practice a high quality of medicine," it said.

The article also mentions a scarcity of drugs and other medical supplies and points out that most medical visitors to Russia are struck by the fact that medical equipment ranges from modern to archaic.

Another weakness, it said, was the separa-

tion of basic experimental work from clinical research, i.e., research that applies to human beings.

Dr. Michael E. De Bakey, a distinguished American surgeon who visited Russia in 1958, was quoted as saying that "this lack of integration tends to make some of the studies pointless and to provide information that has no clinical significance . . . and no fundamental value."

Rehabilitation Service for Iceland Hospital

The services of a New York physician as a consultant in the development of rehabilitation services is being provided to one of Iceland's largest hospitals. The physician is Dr. Bruce B. Grynbaum, Associate Clinical Professor at

Continued on page 224a

NEW "TAILOR-MADE" ANTIHISTAMINE

TABLETS



*keeps patient
symptom-free, alert*

Twiston *
Rotoxamine



*side effects,
particularly drowsiness,
negligible or absent*

Twiston, 2 mg./Twiston R-A, 4 mg....

(REPEAT ACTION TABLETS)

...full symptom-control with unusually low dosage...no toxicity reported.

McNEIL

McNEIL LABORATORIES, INC.
PHILADELPHIA 32, PA.

*Trademark
U. S. Pat. Pend.

In depression

To restore emotional stability
during the declining years



Tofranil®

brand of imipramine hydrochloride

Thymoleptic

New for geriatric use


Tablets of 10 mg.

Recent studies^{1,2} strongly indicate underlying depression as a causative factor; and Tofranil as an eminently successful agent, in restoring the difficult geriatric patient to a more contented frame of mind and more manageable disposition.

1. Cameron, E.: The Use of Tofranil in the Aged, *Canad. Psychiat. A. J. Special Supplement*, **4**:S160, 1959.
2. Christe, P.: Indications for Tofranil in Geriatrics, *Schweiz. med. Wchnschr.*, **90**:586, 1960.
3. Schmied, J., and Ziegler, A.: Tofranil in Geriatrics, *Praxis* **49**:472, 1960.

Also Available:

For the treatment of non-geriatric depression: Tofranil tablets of 25 mg. and ampuls of 25 mg. in 2 cc. solution.

 **Geigy**, Ardsley, New York

TO-451-60

in edema or

- more doctors are prescribing —
- more patients are receiving the benefits of —
- more clinical evidence exists for —



in congestive failure

"Chlorothiazide was given to 16 patients for a total of 295 patient-treatment days." "Chlorothiazide is a safe, oral diuretic with a clinical effect equal to or greater than a parenteral mercurial." Harvey, S. D. and DeGraff, A. C.: N. Y. State J. Med., 59:1769, (May 1) 1959.



in hypertension

"... our program has been one of polypharmacy in which we attempt to deplete body sodium with chlorothiazide. This drug is continued indefinitely as background medication for all antihypertensive drugs." Moyer, J. H.: Am. J. Cardiology, 3:199, (Feb.) 1959.



in premenstrual edema

"Chlorothiazide is an excellent agent for relief of swelling and breast soreness associated with the premenstrual tension syndrome, since all patients [50] with these complaints were completely relieved." Keyes, J. W. and Berlacher, F. J.: J.A.M.A., 169:109, (Jan. 10) 1959.

DOSAGE: Edema—One or two 500 mg. tablets DIURIL once or twice a day. Hypertension—One 250 mg. tablet DIURIL twice a day to one 500 mg. tablet DIURIL three times a day.

SUPPLIED: 250 mg. and 500 mg. scored tablets DIURIL (chlorothiazide) in bottles of 100 and 1,000. DIURIL is a trademark of Merck & Co., Inc. Additional information is available to the physician on request.

hypertension

DIURIL[®]

(CHLOROTHIAZIDE)

than for all other diuretic-antihypertensives combined!



in edema of pregnancy

"One hundred patients were treated with oral chlorothiazide." "In the presence of clinically detectable edema, the agent was universally effective." "Chlorothiazide is at present the most effective oral diuretic in pregnancy." Landesman, R., Ollstein, R. N. and Quinton, E. J.: N. Y. State J. Med., 59:66, (Jan. 1) 1959.



in cirrhosis with ascites

"All three of the patients with Laennec's cirrhosis, ascites and edema had a favorable response, with a mean weight loss of 8 lbs., during the five-day treatment period with a slight decrease in edema." Castle, C. N., Conrad, J. K. and Hecht, H. H.: Arch. Int. Med., 103:415, (March) 1959.



in renal edema

"In a study of 10 patients with the nephrotic syndrome associated with various types of renal disease, orally administered chlorothiazide was a successful, and sometimes dramatic, diuretic agent." Burch, G. E. and White, M. A., Jr.: Arch. Int. Med., 103:369, (March) 1959.



MERCK SHARP & DOHME
Division of Merck & Co., Inc., Philadelphia 1, Pa.



**IN CHRONIC BRONCHITIS,
CHRONIC ASTHMA AND EMPHYSEMA**

**HIGHER THEOPHYLLINE
BLOOD LEVELS**

**MORE EFFECTIVE
BRONCHODILATATION**

less gastric distress—for uncomplicated therapy

Choledyl produces far less gastrointestinal irritation than oral aminophylline. In a study of 200 geriatric patients chronically ill with pulmonary emphysema, bronchitis and asthma, Choledyl was found to be "extremely well tolerated."*

*greater solubility—for
enhanced theophylline blood levels*

Up to 75% higher theophylline blood levels than oral aminophylline—provides superior bronchodilatation: relieves bronchospasm—reduces coughing and wheezing—increases vital capacity—reduces incidence and severity of acute attacks—decreases need for secondary medication.

*Simon, S. W.: Ann. Allergy 14:172-180 (March-April) 1956.

CHOLEDYL®
the choline salt of theophylline brand of oxtriphylline

*better breathing ...
decreases wheezing*



6P04B

224a

NEWS AND NOTES—Continued

New York University Medical Center. The hospital expanding its rehabilitation services is the Landspítalinn. Dr. Grynbaum's services are being made available through the World Rehabilitation Fund and the International Society for the Welfare of Cripples. The Doctor's work in Iceland is part of a long-range program to strengthen rehabilitation services for the physically handicapped in Iceland through the establishment of a physical medicine and rehabilitation service at the Landspítalinn. The physician who will eventually direct the service, Dr. Hauker Thorardson, is currently undertaking postgraduate training in the Department of Physical Medicine and Rehabilitation, New York University Medical Center.

**Addition to Temple University
Medical Center**

Dr. O. Spurgeon English, of the Department of Psychiatry, has announced the opening of a new 23-bed open floor unit at Temple University Medical Center, Philadelphia, for the treatment of combined mental and physical ills. A program to promulgate the concept of a mental health check-up also is planned. Although geared primarily to psychotherapeutic techniques, adjunctive treatment in the new section will include the use of drugs and electroshock. Rooms have been outfitted in a modern decor, and day-beds in lieu of typical bedroom furniture carry out a modern sitting-room atmosphere. A solarium at one end of the floor will lend itself to occupational activities and group therapy.

Footprinting of Babies

The New York State Public Health Council has passed a regulation making footprinting of newborn babies mandatory. More than half of the hospitals in Upstate New York are presently carrying out this procedure. The Federal Bureau of Investigation, the New York State


Continued on page 226a

MEDICAL TIMES

contain
the
bacteria-prone
cold

Tain

(Triacetyloleandomycin, Triaminic® and Calurin®)



inner
protection
with...

safe antibiotics

Triacetyloleandomycin, equivalent to oleandomycin 125 mg. This is the URI antibiotic, clinically effective against certain antibiotic-resistant organisms.

fast decongestion

Triaminic®, 25 mg., three active components stop running noses. Relief starts in minutes, lasts for hours.

well-tolerated analgesia

Calurin®, calcium acetylsalicylate carbamide equivalent to aspirin 300 mg. This is the freely-soluble calcium aspirin that minimizes local irritation, chemical erosion, gastric damage. High, fast blood levels.

TAIN brings quick, symptomatic relief of the common cold (malaise, headache, muscular cramps, aches and pains) especially when susceptible organisms are likely to cause secondary infection. Usual adult dose is 2 Inlay-Tabs, q.i.d. In bottles of 50. **B** only. Remember, to contain the bacteria-prone cold...**TAIN**.

SMITH-DORSEY • Lincoln, Nebraska
a division of The Wander Company

FASTER MIGRAINE RELIEF



SUBLINGUAL
ergomar
ergotamine tartrate tablets

Dissolves in seconds under the tongue, enters blood stream and lymphatics directly. Relief starts within 10-15 minutes.

Supply: Packages of 12 tablets, 2 mg. ergotamine tartrate per tablet.



NORDSON PHARMACEUTICAL LABORATORIES, INC.
Irvington, New Jersey

SULPHO-LAC



The Balanced Acne Therapy

MANUFACTURED BY
KELGY LABORATORIES
NEW YORK 35, N. Y.

NEWS AND NOTES—Continued

Department of Correction, and the American Academy of Pediatrics all agree that footprinting of newborn infants is of value in permanent identification, but only if proper techniques are used in obtaining the prints. Institutes have been set up by the State Health Department regional health directors in cooperation with regional hospital councils to provide instruction for hospital staff members concerned with the techniques of taking footprints properly.

Taste Research

A three-year research project is underway at Rutgers University designed to determine whether the sense of taste changes as a person gets older. The Rutgers research project is being supported by a grant from the pharmaceutical firm of E. R. Squibb and Sons.

Medical Assistance Program

A Community Medical Assistance Program, which helps small towns plan and build a modern medical center that will help attract one or more physicians to the area, has been organized by the Sears-Roebuck Foundation. The Foundation works with civic groups and the local medical society to determine if there is sufficient economic potential for a physician, then helps to form a nonprofit corporation to raise funds for the building. Blueprints, specifications, and architectural advice are provided by the Foundation, as well as a professional consultant to help the doctor get established.

The University of New Mexico

The University of New Mexico is considering plants for the establishment of a school of basic medical science which would cover the first two years of the medical curriculum, then transfer the students to the traditional four-year medical schools for their junior and senior years. In addition to serving the State of New

Continued on page 228a



who coughed?

WHENEVER COUGH THERAPY
IS INDICATED

HYCOMINE[®]

Syrup

THE COMPLETE Rx
FOR COUGH CONTROL

*cough sedative / antihistamine
decongestant / expectorant*

■ relieves cough and associated symptoms in 15-20 minutes ■ effective for 6 hours or longer ■ promotes expectoration ■ rarely constipates ■ agreeably cherry-flavored

Each teaspoonful (5 cc.) of HYCOMINE[®] Syrup contains:
Hycodan[®]

Dihydrocodeinone Bitartrate (Warning: May be habit-forming)	5 mg.	6.5 mg.
Homatropine Methylbromide	1.5 mg.	
Pyrilamine Maleate		12.5 mg.
Phenylephrine Hydrochloride		10 mg.
Ammonium Chloride		60 mg.
Sodium Citrate		85 mg.
Average adult dose: One teaspoonful after meals and at bedtime. May be habit-forming. Federal law permits oral prescription.		

Literature on request

Endo[®]

ENDO LABORATORIES
Richmond Hill 18, New York

*U.S. Pat. 2,630,400

HYPERTUSSIS®

pertussis immune globulin
derived from adult venous blood

in whooping cough . . .

shortens the course, lessens the
severity, reduces the rate of com-
plications. Also for prophylaxis.

Available in one dose 1½ cc. vial.

CUTTER

A Leader in Human Blood Fractions Research

Polio IMMUNE GLOBULIN gamma globulin

derived from adult venous blood

modifies or prevents measles
Available in 2 cc. and 10 cc. vials.

For further information see PDR page
664, Ask Your Cutter Man,
or write to Dept. J-10K

CUTTER LABORATORIES
Berkeley, California



For your
Spanish-speaking
associates . . .

MEDICAL TIMES

"Edicion en Castellano"

Now available for your Spanish-speak-
ing associates — selected articles from
Medical Times printed in Spanish.
"Edicion en Castellano" of Medical
Times is mailed monthly direct from
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MEDICAL TIMES OVERSEAS, INC.

1447 Northern Boulevard, Manhasset, N. Y.

NEWS AND NOTES—Continued

Mexico, the new school of the basic medical sciences would be regional in character, and reportedly should attract students from thirteen of the western states, eight of which do not have a medical school. A joint committee from the American Medical Association and the Association of American Medical Colleges will counsel the University in this pilot venture which is expected to provide an economical and practical method of increasing the supply of physicians. A grant of \$1,082,300 from the W. K. Kellogg Foundation will finance the plan.

Hypnosis in Athletics

Two separate committees of the American Medical Association have released a joint statement condemning the use of hypnosis in athletics as being dangerous and unsportsmanlike.

Prepared by the Committee on Hypnosis and the Committee on The Medical Aspects of Sports, the statement said that the use of hypnosis in athletics may aggravate physical impairments of which the athlete is unaware.


Another danger is that an athlete might exceed the limits of his physical ability and become exhausted to the point of harm. It also is possible that he could expose himself to injury by concentrating so intently on his performance that he ignores previously learned safety measures.

The statement, copies of which are available from the A.M.A., concluded, there is another objection by many to using hypnosis in an effort to improve performance—it is not good sportsmanship.

Hospital Design Research

The U. S. Public Health Service has awarded the first grant ever given to a chapter of the American Institute of Architects for research in hospital design. The project will cover a three-year study of the planning of hospital suites. The project's work will include an in-

Concluded on page 230a



*because
you
treat them
gently*

OTRIVIN[®]
ON PRESCRIPTION ONLY

*for gentle
relief
of stuffy
nose*

Otrivin relieves stuffy nose by
decongesting the engorged
mucosa, re-establishing
comfortable nasal airways.

Its action is not only
gentle but prompt and
prolonged, with little or no
rebound congestion or other
side effects. *Complete
information sent on request.*

Supplied: OTRIVIN Nasal Solution, 0.1%;
dropper bottles of 1 ounce.

OTRIVIN Pediatric Nasal Solution, 0.05%;
dropper bottles of 1 ounce.

OTRIVIN Nasal Spray, 0.1%;
plastic squeeze tubes of 15 ml.

OTRIVIN Pediatric Nasal Spray, 0.05%;
plastic squeeze tubes of 15 ml.

*OTRIVIN[®] hydrochloride
(xylometazoline hydrochloride CIBA)*

CIBA

SUMMIT, NEW JERSEY

2/2020011

vestigation of routines carried on in operating rooms, a survey of work being done in combatting hospital-acquired infections, insofar as this applies to the layout and equipment of operating suites, and an analysis of existing and projected operating-suite plans, with the purpose of developing information to help hospital architects.

Program for Students to Study Abroad

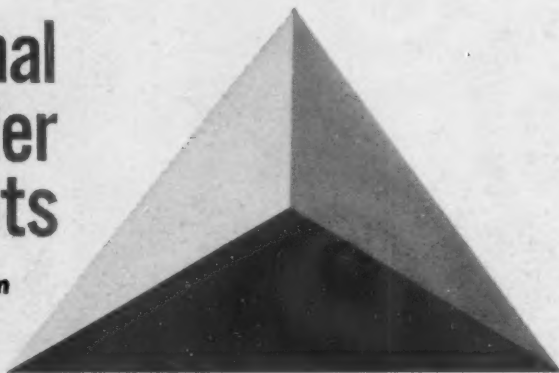
A plan to further the medical education of students by study in various areas abroad has been announced by the Association of American Medical Colleges. The students must have completed three years at medical school. The program has been made possible by a grant from the Smith Kline and French Laboratories, and will permit 30 students to participate annually.

Health Units to Poland

United States Ambassador Jacob D. Beam has presented four mobile health units to the Polish government. The units, a gift from CARE, are fully equipped for mass inoculations of children against tuberculosis. Two units contain dental equipment and laboratories for work among underprivileged village children in Southern Poland. The four units represent a pilot project. CARE, the Cooperative for American Remittances to Everywhere, is planning to import other units to bring modern medication to Poland's backward areas. Since the resumption of its operations in Poland, CARE has brought about \$8 million worth of bulk foodstuffs, food packages, poliomyelitis vaccines, antibiotics, multivitamins, and specialized medical equipment to that country. This year's program is expected to amount to \$5 million.

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50 mg. • L-Lysine Monohydrochloride 25 mg. • Vitamin E (Tocopherol Acid Succinate) 10 Int. Units • Rutin 12.5 mg. • Ferrous Fumarate (Elemental iron, 10 mg.) 30.4 mg. • Iodine (as KI) 0.1 mg. • Calcium (as CaHPO₄) 35 mg. • Phosphorus (as CaHPO₄) 27 mg. • Fluorine (as CaF₂) 0.1 mg. • Copper (as CuO) 1 mg. • Potassium (as K₂SO₄) 5 mg. • Manganese (as MnO₂) 1 mg. • Zinc (as ZnO) 0.5 mg. • Magnesium (MgO) 1 mg. • Boron (as Na₂B₄O₇·10H₂O) 0.1 mg. Bottles of 100, 1000.

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

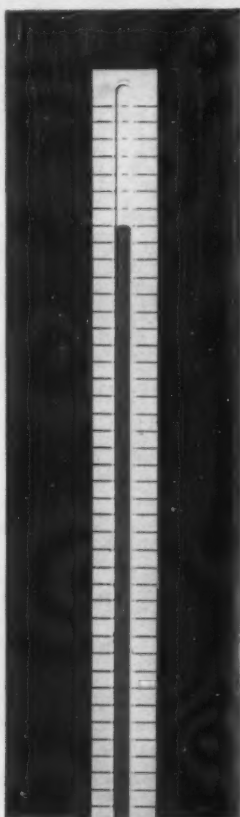


■ for a smooth downward curve

New Rautrax-N results in prompt lowering of blood pressure.¹ Rautrax-N, a new and carefully developed antihypertensive-diuretic preparation, provides improved therapeutic action¹ plus enhanced diuretic safety for all degrees of essential hypertension. A combination of Raudixin and Naturetin, Rautrax-N facilitates the management of hypertension when rauwolfia alone proves inadequate, or when prolonged treatment, with or without associated edema, is indicated.

Naturetin, the diuretic of choice, also possesses marked antihypertensive properties, thus complementing the known antihypertensive action of Raudixin. In this way a lower dose of each component in Rautrax-N controls hypertension effectively with few side effects and greater margin of safety.

1-16



Other advantages are a balanced electrolyte pattern¹⁻¹⁶ and the maintenance of a favorable urinary sodium-potassium excretion ratio.²⁻¹⁶ Clinical studies¹⁻⁵ have shown that the diuretic component of Rautrax-N—Naturetin—has only a slight effect on serum potassium. The supplemental potassium chloride provides additional protection against potassium depletion which may occur during long term therapy.

Rautrax-N may be used alone or in conjunction with other antihypertensive drugs, such as ganglionic blocking agents, veratrum or hydralazine, when such regimens are needed in the occasionally difficult patient.

Supply: Rautrax-N—capsule-shaped tablets providing 50 mg. Raudixin (Squibb Rauwolfia Serpentina Whole Root) and 4 mg. Naturetin (Squibb Benzhydroflumethiazide), with 400 mg. potassium chloride.

Dosage: Initially 1 to 4 tablets daily after meals. Maintenance—1 or 2 tablets daily after meals; maintenance dosage may range from 1 to 4 tablets daily. For complete instructions and precautions see package insert. Literature available on request.

References: 1. Reports to the Squibb Institute, 1960. 2. David, N. A.; Porter, G. A., and Gray, R. H.: *Monographs on Therapy* 5:60 (Feb.) 1960. 3. Stenberg, E. S., Jr.; Benedetti, A., and Forsham, P. H.: *Op. cit.* 5:46 (Feb.) 1960. 4. Fuchs, M.; Moyer, J. H., and Newman, B. E.: *Op. cit.* 5:55 (Feb.) 1960. 5. Marnett, H. J. L., and Schamroth, L.: *Op. cit.* 5:14 (Feb.) 1960. 6. Ira, G. H., Jr.; Shaw, D. M., and Bogdonoff, M. D.: *North Carolina M. J.* 21:19 (Jan.) 1960. 7. Cohen, B. M.: *M. Times*, to be published. 8. Breneman, G. M., and Kays, J. W.: *Henry Ford Hosp. M. Bull.* 7:281 (Dec.) 1959. 9. Forsham, P. H.: *Squibb Clin. Res. Notes* 2:5 (Dec.) 1959. 10. Larson, E.: *Op. cit.* 2:10 (Dec.) 1959. 11. Kirkendall, W. M.: *Op. cit.* 2:11 (Dec.) 1959. 12. Yu, P. N.: *Op. cit.* 2:12 (Dec.) 1959. 13. Weiss, S.; Weiss, J., and Weiss, B.: *Op. cit.* 2:13 (Dec.) 1959. 14. Moser, M.: *Op. cit.* 2:13 (Dec.) 1959. 15. Kahn, A., and Grenblatt, I. J.: *Op. cit.* 2:15 (Dec.) 1959. 16. Grollman, A.: *Monographs on Therapy* 2:1 (Feb.) 1960.

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Squibb Standardized Whole Root Rauwolfia Serpentina (Raudixin)
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M4

**Handcarved
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Imported from Europe, these richly detailed, hand-painted figures make ideal conversation pieces, gifts, bridge prizes, etc., and they add a bright note to any home or office.

Each 7 inches high—\$7.95 postpaid, or \$7.45 each when ordered by the dozen.

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Money promptly refunded if not satisfactory.

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MEDICAL TIMES OVERSEAS, INC.

Dept. GM, 1447, Northern Blvd., Manhasset, N. Y.

DIAGNOSIS, PLEASE

(Answer from page 33a)

VOLVULUS OF THE SPLENIC FLEXURE

There is a marked redundancy in the region of the splenic flexure with rotation, producing marked obstruction. The descending and sigmoid portions are pulled up by the rotation putting them under tension.

WHO IS THIS DOCTOR?

(Answer from page 77a)

ANTON CHEKHOV

MEDIQUIZ

(Answers from page 81a)

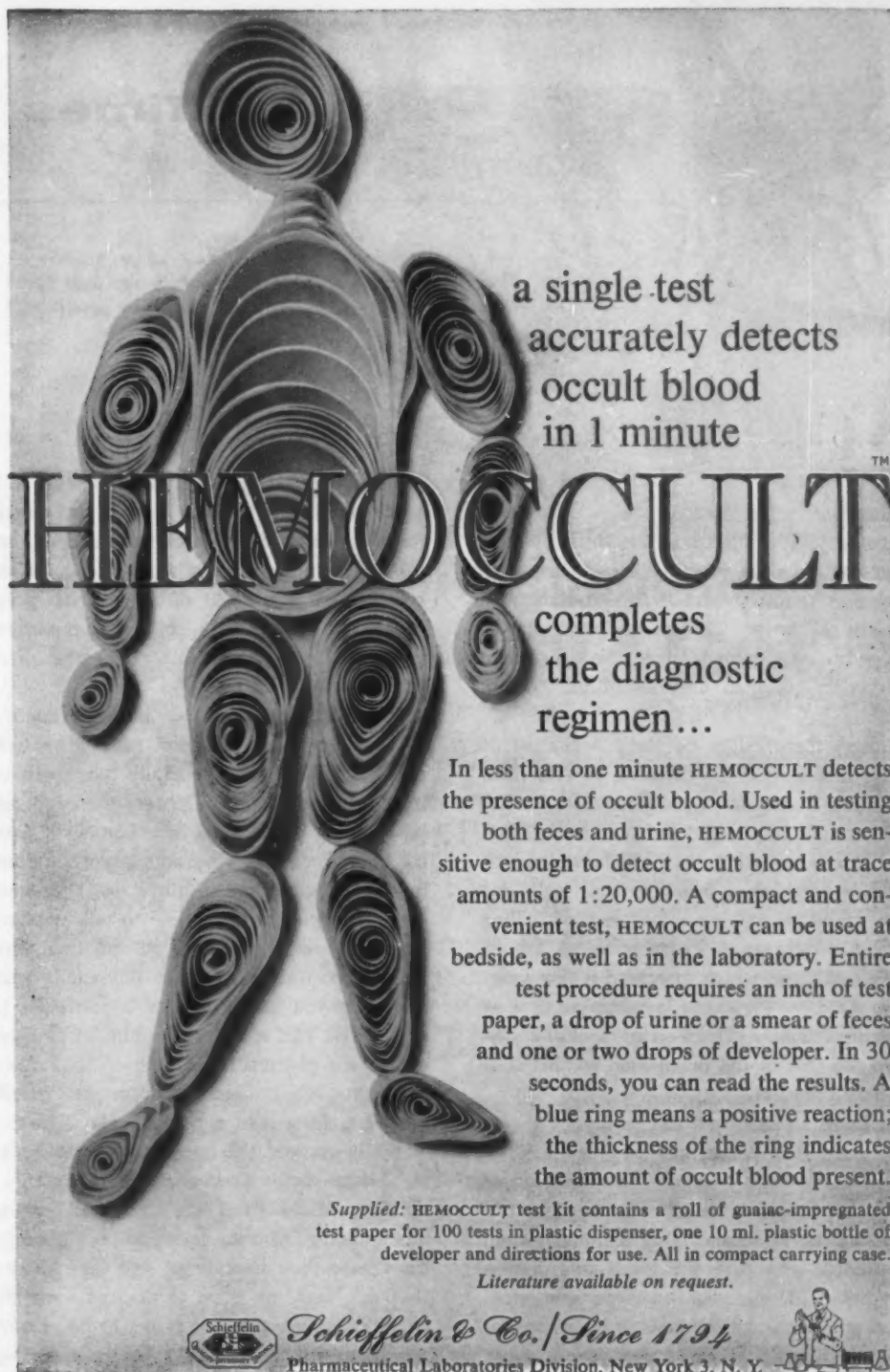
1 (E), 2 (B), 3 (B), 4 (B), 5 (A), 6 (C), 7 (A), 8 (D), 9 (E), 10 (B), 11 (B), 12 (A), 13 (A).

WHAT'S YOUR VERDICT?

(Answer from page 63a)

The Supreme Court affirmed the decision of the trial court, holding: "The evidence leaves the question of the patient's heart disease at the time of the operation in the realm of conjecture. The issue involved matters of a highly technical nature and to have submitted it to the jury on the foregoing evidence would have invited them to indulge in sheer speculation."

Based on decision of
SUPREME JUDICIAL COURT
OF MASSACHUSETTS



a single test
accurately detects
occult blood
in 1 minute



HEMOCCULTTM

completes
the diagnostic
regimen...

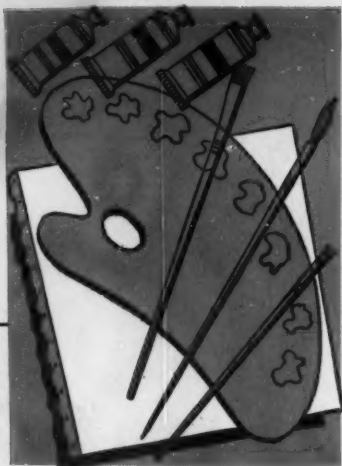
In less than one minute HEMOCCULT detects the presence of occult blood. Used in testing both feces and urine, HEMOCCULT is sensitive enough to detect occult blood at trace amounts of 1:20,000. A compact and convenient test, HEMOCCULT can be used at bedside, as well as in the laboratory. Entire test procedure requires an inch of test paper, a drop of urine or a smear of feces and one or two drops of developer. In 30 seconds, you can read the results. A blue ring means a positive reaction; the thickness of the ring indicates the amount of occult blood present.

Supplied: HEMOCCULT test kit contains a roll of guaiac-impregnated test paper for 100 tests in plastic dispenser, one 10 ml. plastic bottle of developer and directions for use. All in compact carrying case.

Literature available on request.

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Covering the Times

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The scene on this month's cover is a familiar one in doctors' offices throughout the country, for the detail man—the closest contact between the practitioner and the pharmaceutical industry—makes his rounds with clocklike regularity. Though the public knows little or nothing about his role, the detail man today is an accepted member of the "health team."

Though there might be some argument as to who first started the detailing of American physicians, it is generally conceded that Silas M. Burroughs introduced the practice in England. In a letter written in 1879 he stated that his newly established firm was the "only one in the kingdom making a business of calling on doctors with samples of new things."

In an editorial which appeared a few years ago in *Resident Physician*, a sister publication of *Medical Times*, Dr. Perrin H. Long discussed the role of the detail man for his resident-intern readers.

Dr. Long, in part, had this to say:

"A good detail man can be very helpful. He can bring directly to you the newest products of his company as soon as they are approved by the Food and Drug Administration, and provide you with the latest information about them. He can also bring you new information on established products of his company. If you are puzzled by the action of a drug, or the reaction of a patient to a drug, your detail man, having the entire informative and

investigative resources of his company at his command, can promptly obtain information for you. By the same token, the detail man can take your reports of favorable or adverse reactions to a product directly to the proper sources in his company, so that your observations can be of help to other members of our profession.

"The detail man is also a clearinghouse of information relative to the use of his company's products. He generally has about two hundred doctors, several pharmacies, and some hospitals on his list, and he is constantly learning how his company's products are being used by other doctors and in hospitals. Frequently, if you will give him the time to talk with you, he can provide you with information which he has received from other physicians which may help you in the care of a particular patient. You can also turn to him in emergencies, when pharmacies are closed, and one of his company's products is desperately needed for the treatment of a patient. He is there to give service, and the chances are that he will be able to supply your needs promptly . . .

"Keep in mind the fact that detail men are human beings who are trying to do a good job. They have their limitations, and they know it. So don't 'beat' on them as doctors sometimes do. Remember, they are trying to be of direct service to you and to help you in every way they can so that you can provide the best of therapy for your patients."



EVEN HOT STAPH.* SUCCUMB TO FURACIN® NASAL

brand of nitrofurazone

with phenylephrine

to conquer a growing problem—resistant staph.

"We have used FURACIN Nasal successfully in eradicating staphylococci from the nasal passages of our nursing personnel. The majority of cases are cleared with 5 days of treatment."¹

routine in sinusitis, rhinitis and nasopharyngitis

"Intranasal and sinus infections have been found to disappear promptly . . . helps to combat the associated nasopharyngitis."²

■ wide bactericidal range ■ negligible bacterial resistance ■ no cross-sensitization or bacterial cross-resistance to systemic agents ■ low sensitization rate ■ no irritation, no stinging, no slowing of the ciliary beat ■ no interference with phagocytosis or healing.

FORMULA: FURACIN 0.02% with phenylephrine·HCl 0.25% in an aqueous, isotonic solution of sodium salts and methylparaben.

SUPPLY: Plastic atomizer of 15 cc. for administration by either spray or drop.

References: 1. Personal Communication to Eaton Laboratories, 1959. 2. Spencer, J. T., in Conn, H. F.: *Current Therapy* 1954, Philadelphia, W. B. Saunders Co., 1954, p. 130.

*antibiotic-resistant staphylococci

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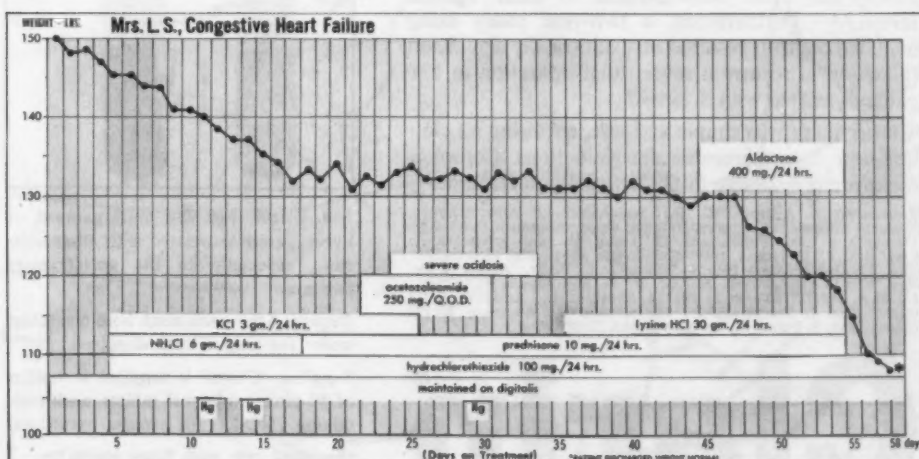
Further, Aldactone minimizes the electrolyte upheaval often caused by mercurial and thiazide compounds.

The accompanying graph shows a dramatic but by no means unusual instance of the effect of Aldactone in refractory edema.

The usual adult dosage of Aldactone, brand of spironolactone, is 400 mg. daily. Complete dosage information is contained in Searle New Product Brochure No. 52.

SUPPLIED: Aldactone is supplied as compression-coated yellow tablets of 100 mg.

G. D. SEARLE & CO., Chicago 80, Illinois.
Research in the Service of Medicine.



safe and practical treatment of the postcoronary patient

A basic characteristic of the postcoronary patient, whether or not cholesterol levels are elevated, is his inability to clear fat from his blood stream as rapidly as the normal subject.¹⁻³ Figure #1 graphically illustrates this difference in fat-clearing time by comparing atherosclerotic and normal subjects after a fat meal.³

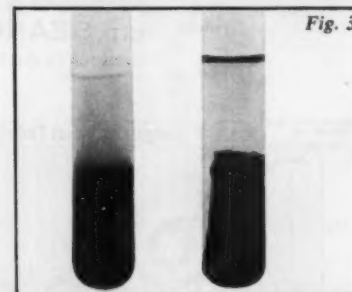
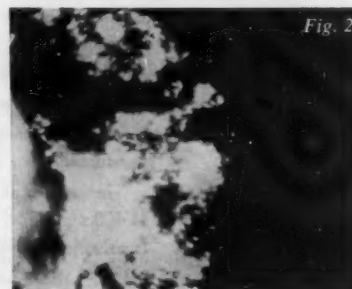
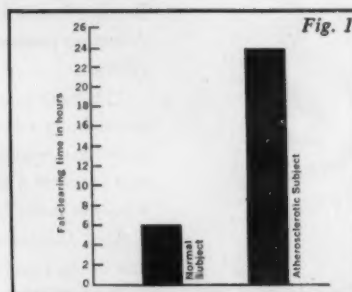
"Slow clearers" gradually accumulate an excess of fat in the blood stream over a period of years as each meal adds an additional burden to an already fat-laden serum. As shown in figure #2, the blood literally becomes saturated with large fat particles, presenting a dual hazard to the atherosclerotic patient: the long-term danger of deposition of these fats on the vessel walls,⁴ and the more immediate risk of high blood fat levels after a particularly heavy meal possibly precipitating acute coronary embarrassment.⁵

In figure #3, the test tube at the left contains lipemic serum, while the one at the right contains clear, or normal serum. If serum examined after a 12-hour fasting period presents a milky appearance, this is a strong indication that the patient clears fat slowly and is a candidate for antilipemic therapy in an effort to check a potentially serious situation.

'Clarín', which is heparin in the form of a sublingual tablet, has been demonstrated to clear lipemic serum.^{2,6,7} Furthermore, a two-year study using matched controls resulted in a statistically significant reduction of recurrent myocardial infarction in 130 patients treated with 'Clarín'.⁸

'Clarín' therapy is simple and safe, requiring no clotting-time or prothrombin determinations. Complete literature is available to physicians upon request.

References: 1. Anfinsen, C. B.: Symposium on Atherosclerosis, National Academy of Sciences, National Research Council Publication 338, 1955, p. 218. 2. Berkowitz, D.; Likoff, W., and Spitzer, J. J.: Clin. Res. 7:225 (Apr.) 1959. 3. Stutman, L. J., and George, M.: Clin. Res. 7:225 (Apr.) 1959. 4. Wilkinson, C. F., Jr.: Annals of Int. Med. 45:674 (Oct.) 1956. 5. Kuo, P. T., and Joyner, C. R., Jr.: J.A.M.A. 163:727 (March 2) 1957. 6. Fuller, H. L.: Angiology 9:311 (Oct.) 1958. 7. Shaftel, H. E., and Selman, D.: Angiology 10:131 (June) 1959. 8. Fuller, H. L.: Circulation 20:699 (Oct.) 1959.



Indication: For the management of hyperlipemia associated with atherosclerosis, especially in the postcoronary patient.

Dosage: After each meal, hold one tablet under the tongue until dissolved.

Supplied: 'Clarín' is supplied in bottles of 50 pink, sublingual tablets, each containing 1500 I.U. of heparin potassium.

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(sublingual heparin potassium, Leeming)

*Your surgical convalescent feels better
because he is better with*

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(Nandrolone phenpropionate injection, ORGANON)

1 cc. once each week

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- + to promote rapid wound healing
- + to restore appetite, strength, vitality
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Supplied: 1-cc. ampuls (box of three) and 5-cc. vials,
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Adults: 1 cc. i.m. each week, or 2 cc. every other week.



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New convenient b.i.d. alternate dosage schedule: the degree and extent of relief provided by DECADRON allows for b.i.d. maintenance dosage in many patients with so-called "chronic" conditions. Acute manifestations should first be brought under control with a t.i.d. or q.i.d. schedule.

Supplied: As 0.75 mg. and 0.5 mg. scored, pentagon-shaped tablets in bottles of 100. Also available as Injection DECADRON Phosphate. Additional information on DECADRON is available to physicians on request. DECADRON is a trademark of Merck & Co., Inc.

*From a clinical investigator's report to Merck Sharp & Dohme.

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